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INTERPRETATION OF BLADDER SYMPTOMS IN THE FEMALE*

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It was not with an idea of offering anything new or original that I accepted the privilege of reading this paper before this association, but rather because of the conviction that the importance of the subject justified the emphasis of some of the more salient points even at the risk of the repetition of certain recognized and well known facts.

True it seldom happens nowadays that a well trained urologist fails to attach the proper significance to bladder symptoms, but it is none the less true that, to the general practioner and even to the man specializing along other lines, bladder symptoms still too often mean cystitis, and nothing more.

As a result of this misconception, it not infrequently happens that destructive lesions, which often lie behind what seems to be a trivial local condition, are allowed to progress to the point where important organs, or life itself is sacrificed.

When I speak of bladder symptoms, I have in mind particularly the symptoms of bladder irritation, i. e., frequency and dysuria.

If we will bear in mind the possibilities in each case of what appears to be a simple cystitis, we will often be rewarded by the discovery of a serious lesion in its incipiency.

Every case deserves the most careful handling. First a thorough history should be carefully elicited. This alone will frequently give us the proper clue.

Of what duration are the symptoms, and are they more severe or present only at the menstrual periods? Were the symptoms preceded by or associated with a discharge? Has the patient borne children or had abortions? Has there at any time been pain in either loin with or without radiation toward the bladder? Has the pain been sharp or dull and associated with chills and fever? Has the urine ever been bloody? Has there been any gastro-intestinal symptoms? Has the patient experienced any loss in weight or strength? Is the dysuria most marked before, during, or after the act? Is there any incontinence (partial or total), and is the stream ever checked suddenly during the act?

Is there any pain in the bladder region independent of the urinary act, and if so is it more pronounced on jarring? Is there inability to empty the bladder completely, and does change in position bring on a desire to urinate soon after the bladder has apparently been emptied? Has the patient entered the menopause, and if so has there been any spotting of blood?

Is there anything in the history suggestive of syphilis? The taking of the history should be followed by a complete physical examination. This should include the taking and recording of the temperature, pulse, and blood pressure. The skin and mucous membranes should be inspected for secondaries. The reflexes should be tested, and the glandular system palpated. Then the chest and abdomen should receive a thorough going over, and careful search should be made for infected foci as the possible source of our trouble. The renal regions should then be subjected to careful palpation for tumor, tenderness, and movable kidney. This is often best done with the patient in the sitting or semi-reclining position.

The Murphy fist percussion should be employed to test the presence or absence of tension within the kidney capsule. It is well to remember in this connection a point mentioned by Murphy that prolonged palpation of a healthy kidney is sometimes followed by the appearance of microscopic blood in the urine.

A specimen of urine should, therefore, be collected before the examination is made, and prior to any urethral instrumentation in order to avoid the confusion likely to arise from the presence of traumatic blood. The examination should not be considered complete without a visual inspection of the vulva and meatus urinarius for signs of inflammation, discharge, caruncle, etc., and a pelvic examination should never be neglected. This may reveal a suspicious cervix which bleeds readily to touch, a prolapsed or retroverted of subinvoluted uterus, a parametrial or tubal involvement or tumor. A stone in the bladder or vesical end of the

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ureter may also be palpated through the vagina.

The parous woman should be examined in the standing posture for signs of relaxation of the anterior vaginal wall.

If, after carrying out the painstaking investigation above outlined, we have disclosed nothing of a serious nature either within or without the bladder, then and then only are we justified in making a tentative diagnosis of simple cystitis, and putting the patient on appropriate treatment with the assurance of relief in ten days to two weeks considering our tentative diagnosis is correct.

If after that time there is no improvement, or only temporary improvement, we should realize that the cystitis is secondary to some other condition, and at once institute further investigation.

Cystoscopy is the next logical procedure. It may show us an infected diverticulum which has been reinfecting the bladder as fast as we get it cleared up. The solitary ulcer or the secondary or tertiary lesions of syphilis may be found, or a group of tubercles or ulcers about an ureteral orifice may give us the clue to renal tuberculosis above. A stone or papilloma may appear as the contributing factor or a patch of bullous edema may disclose the existence of an inflammatory mass in the pelvis.

If pus is present in the urine, the ureter catheter will prove beyond all doubt whether or not the pus has its source above the bladder, and whether one or both kidneys are involved, and make possible the collection of separated urines for analysis, functional tests and guinea pig inoculation.

The passage or withdrawal of the catheter may locate a ureteral stricture which may be the cause of our patient's trouble.

Finally, the roentgenogram with shadow catheters in situ, and the uretero-pyelogram are invaluable diagnostic aids in cases of kidney and ureteral stone, and conditions which cause dilatation or distortion of the ureter or pelvis. Among these may be mentioned ureter stricture, infections of the kidney and ureter, neoplasm, and nephroptosis.

In short there is nothing diagnostic about the ordinary bladder symptoms. They are simply indicative of bladder irritation, and in the vast majority of instances have an extravesical cause.

There are, however, certain variations in bladder symptoms which are of value in differential diagnosis. For example, a chronic cystitis of extreme severity is suggestive of tuberculosis. This suggestion is strengthened if the urine is acid and contains microscopic blood, or pus which is sterile to culture. The finding of the tubercle bacillus (and this is possible in about 80% of cases) makes the diagnosis certain. The finding of other organisms on culture does not rule out tuberculosis, for there may be a mixed infection.

Other infections associated with an acid urine are those due to the colon and typhoid bacilli and the gonococcus, while the staphylococcus, streptococcus and proteus group are found in alkaline urine.

The term, "irritable bladder," is often applied to the condition characterized by symptoms of bladder irritation with a sterile urine which is free from pus, and the case dismissed with a prescription for some urinary sedative.

But such a diagnosis should always be guarded. Careful study will often show that the symptoms are due to some pelvic condition which from pressure causes an interference with the bladder circulation; or the cause may lie in some dietetic error, or a concentrated urine.

When dealing with the woman patient, the fact should not be lost sight of that ascending bladder infections are far more frequent than in men, because of the short urethra, and for the same reason kidney infections are more frequent.

Finally, I wish to repeat that the only safe way to approach a case of cystitis, which has resisted treatment, is with the idea that a contributing factor is present until its absence is proven by thorough study and the employment of all the available diagnostic aids; and this stand should be taken for two reasons—first, because cystitis is usually the expression of some condition, either intra- or extra-vesical, which is far more dangerous than the cystitis itself, and second, because the treatment of a cystitis without removal of the accessory cause is without avail, while removal of the accessory factor usually makes treatment of the cystitis unecessary.

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Discussion

Dr. J. H. Hays, Enid: Mr. Chairman. There are two things in this paper that I would specially like to emphasise. The history and medical examination of the patient. Those points the doctor brought out in his most excellent paper. The physician should take the history, make the physical examination before his mind is made up—make no diagnosis before he takes the history and makes the physical examination. A careful physical examination in itself is probably the most important thing. I would also add to that the microscopic findings.

Of course, the Doctor has given you to understand that in the first place is the question of

frequent and painful urination. The first point that I would take into consideration when the patient came in after his statement and the physical examination, would be a specimen of the urine. Does the urine contain pus, or not? If the urine contains pus, you are pretty sure that there is some trouble somewhere in the urinary tract, either between the point of the cortex of the kidney; that is, provided the patient has not been probed before she passes the urine. If the urine does not contain pus, I would not be prepared to say that there was not any trouble in the urinary tract, but I would suspect that the trouble was outside of the urinary tract. I think all of you will agree who read the cystoscope that there are many cases of cystitis that are producing painful urination caused as the doctor mentioned which will not be cured until the accessory cause is cured. The question of treatment, the doctor never went into.

If the trouble is outside of the urinary tract, and if the patient has not reached the period of menopause, I think you will find that eighty per cent of those cases, probably a higher percentage, will be found somewhere in the pelvic regions outside of the bladder. The most frequent thing that I have found outside of the bladder—if the woman has borne a child, the most frequent cause I have found has been either the prolapse of the bladder or the prolapse of the posterior portion of the urethra that is due to laceration. I presume everyone of you can recall many cases of this type; that is, cases in which there is no pus in the urine, in which upon inspection of the internal genitals you will see no indications of a prolapsus, but upon palpation with the finger in the anterior portion of the vagina you will see that there is a sliding down of the urethra. If you will take the trouble to pass a soft catheter, you will find that there is a sagging of the urethra, and if you will make a microscopic examination of this urethra, you will find that it is either urethal papilloma or a chronic inflammatory condition of the urethra. You will find upon milking this urethra that you will probably milk away a small amount of urine, and maybe when the urine is clear you will also find pus.

Of course, the next thing that has attracted my attention has been displacements of the tube and involution of the urine. Especially has my attention been called by the doctor to bullous edema. That subject has been mentioned in two papers here today. I don't know how many of you have observed cases of bullous edema. I have seen a number of cases in the last year that have attracted my attention, and I have noticed that in practically every case I would find either a subinvoluted uterus, or a fibroid of the uterus, or a retroversion of the uterus—in all the cases that I have seen, I think. I know it is a form of bladder disease that I have overlooked in the past, and I think it has been overlooked by a great many. In cases of infection of the bladder, the most frequent cause that I have found (that is, in cases outside of simple cystitis, which the doctor has been discussing today) has been pyelitis—I mean by that, an infection where there has been pus. I think, as I have tried to emphasize a number of times, that there are more cases of pyelitis overlooked than any other disease except skin disease. Pyelitis is an unusually common disease. It is a disease that may exist for years, contracted in childhood and becoming acute in manhood or in old age. I know that everyone of you that is connected with the hospital see many cases that when they come to the hospital for operation for some other disease, develop a temperature, and you find pyelitis, simply proving that pyelitis is a chronic disease and that it is not diagnosed until it becomes acute, secondary to some other disorder.

All that I could add in addition to that is that it is a most excellent paper and the points about the history and the examination of the case are as good points as I ever heard.

Dr. W. J. Wallace, Oklahoma City: Mr. Chairman. In making a diagnosis of the bladder conditions as outlined by Dr. Mraz, a complete physical examination is necessary. And one other thing in the general system that has been covered, as a routine practice, begin first with the urethra. Many of the cases in the urethra carrying in it the characteristic evidences of cystitis are higher up. That is quite common. We find it in old ladies; we find it in young; we find it in people that have had gonorrheal conditions. In old ladies and young we find a cystitis—a cysto-cell which is due to a condition in the urine.

We have a condition of the uterus and the tissues and various things that is caused by the frequency of urination and is not a cystitis but a condition of the urine that was overlooked—that has been treated so often with various medicines without touching a cysto-urethroscope, the instrument to be used in these cases. The cystoscope does not give us any light on that on account of the fact that we are unable to see through the urinary tract, but with the cysto-urethroscope and with a continuous flow of water through this tract, we can visualize the entire tract and thereby make that location.

Now, cystitis has been the great principal, predisposing, and active cause of pyelitis. In the active cases the urinations are frequent and painful and also pus and blood are found in the urine. So we can look for these three

things and will practically always make out something in the urine with the cystoscope and the cysto-urethroscope.

Pyelitis is very frequently diagnosed as cystitis. One case that I will refer to which was suffering with cystitis wanted me to make an examination. I took the history and made a cystoscope examination. I found a normal bladder, but in one of the urinary orifices we found a zone of slight congestion—a little bulging and inversion of the urine from that. Otherwise we found a normal bladder. In that case we have a reflex symptom. It is a reflex from the pelvis and the kidney into the bladder, which causes this frequency and irritable urination which I speak of. Cystitis and pyelitis are very common. I think that pyelitis can begin in early childhood and go on from time to time with its characteristic exacerbations and then later develop into pyelo-nephritis with some destructive condition of the urine. And pyelitis should be looked for following all of these various infectious diseases, especially the "flu" and other characters of diseases which we have been having in recent years, and I try to follow them up if a case comes in with any irritation of the bladder whatever—to make a careful painstaking diagnosis and a definitely correct diagnosis of the urine, especially following this type of disease.

I wish to compliment Dr. Mraz on his paper.

Dr. J. H. Hays, Enid: There is one point the doctor mentions that I have tried out this this past year quite extensively. It is that many of these cases were due to a stricture of the urethra, allowing diagnosis as stricture. Have you a stricture, or have you an obstruction of the urine? I don't know what the experience of other cystoscopics have been, but I have found a great many cases in men where I have been unable to pass the catheter up the ureter when it proved to be a perfectly normal urethra. The curvature has been such that I was unable to pass the catheter. Of course, we think right away that this patient has either got a stricture or a stone, and so, you know when you find a lot of these cases you begin to think that there is something the matter with yourself. One usually can pass the catheter up far enough to get beyond the opening even if the cavity happens to open to one side. So, in the past year to prove to myself whether I had an obstruction or whether I had a stricture, or whether there was nothing the matter, I take this procedure: I take and place in the operating cystoscope, using a number ten catheter, the largest that I have; pass it into the urethra as far as I can, usually beyond the opening, and then inject through this cavity a solution of chlorin-nitrate. Of course, I am careful not to inject enough chlorin to produce tensions in the ureter. If there is a stricture, I dilate or remove the stricture just enough to partially fill the pelvis of the kidney. After filling the catheter, I have a pyelogram taken, and in that way I can demonstrate the number of strictures and can demonstrate to myself how few obstructions we have. Really it is surprising to me the number of strictures that we find in women; strictures that must be due to a prolapsus of the pelvic formation.

Dr. J. Hoy Sanford, Muskogee: I would just like to say a few words in regard to some cases in which you are unable to pass the ureter-catheter, with apparently no pathological symptoms present. It has been my experience that those cases have an angulation of the urethra—have a urethra ovular junction, and if you are careful and get your cystoscope just at the proper angle, you will overcome the ovulation and pass it without any difficulty. I think it depends largely where you locate your stricture or obstruction in overcoming the ovulation by putting your scope at the proper angle.

Dr. Mraz, closing: Gentlemen. I wish to thank the gentlemen for their discussion. I know, to me, it has been a very instructive one. Dr. Hays' point that the absence of pus in the urine does not necessarily exclude the possibility of infection along the urinary tract, I think is a very good one, for we know that there are many cases of pyelitis that are intermittent. So, I think that it is plain enough that one negative urinalysis should not be taken as conclusive, but should be followed by other urinalysis in an attempt to catch it at some time when it does contain pus.

So far as the ureteral strictures are concerned and the passing of catheters through the ureters, my experience has been somewhat like Dr. Sanford's. I have catheterized cases where my cathether would block and then getting it into a little different angle it would pass up, or possibly I would distend the bladder a little more with the fluid, or allow some of the fluid to escape from the bladder and then attempt it in that way. But there are some cases, I admit, that I experience where I can't pass the ureter catheter on up, and still apparently there are no pathological conditions present. I also use the method described by Dr. Hays of injections in the ureter, in these cases, and using a large calibre ureter catheter, entirely blocking the urethra to prevent the back flow. Then inject the shadow producing fluid and the picture will show the stricture, when present, in a large percentage of cases. This will be indicated by the dilated ureter above and by the constriction at the site of the stricture.

ETIOLOGY, DIAGNOSIS AND SIGNIFICANCE OF HEMATURIA OF THE GENITO-URINARY TRACT.*

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Hematuria of the genito-urinary tract is of very frequent occurrence, and results from many and varied conditions. Unfortunately it is lightly interpreted by the laity and a majority of physicians.

The purpose of this paper is not to quote statistics, but to urge the necessity for immediate examination and diagnosis when the first symptom, bloody urine, is discovered.

Hematuria is of grave significance and is due to some serious pathology. It is often difficult, and at times impossible, to determine the exact cause of the pathological changes from which it is derived, but with care and patience we can in all cases locate the real origin.

Etiology

Hematuria, according to the location of the bleeding, may be classified into: *first*, urethral or prostatic urethral; *second*, vesical; *third*, ureteral, and *fourth*, renal, including the kidney, and its pelvis.

According to its cause, it may be classified as follows: 1. Traumatic, including accidental injury, and also that occurring from stone. 2. Inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also acute urethritis, 3. Vascular, blood dyscrasie, such as hemophilia, etc., and venenous obstruction of the kidney, especially that due to torsion in mobility of the kidney; hydronephrosis, varicosity of the vesical veins, especially that due to prostatic engorgement. 4. Chemical, in which class should be placed hemorrhage from irritating drugs, as turpentine, cantharides, etc. 5. Toxic, in which the hemorrhage is the result of vascular changes occurring in severe toxemias, such as that resulting from malaria, acute yellow atrophy of the liver, yellow fever, scurvy, pregnancy, etc. 6. Neoplastic. 7. Parasitic.

The study of hematuria may be classified according to the location and origin and to do this I shall take it up systematically, beginning with the urethral tract.

The etiological factors of this tract are anterior and posterior gonococcal infection, granular urethritis, ulcers, papillomas, strictures, abscesses, foreign bodies, calculi, tuberculosis, instrumentation, acute prostatitis, seminal vesiculitis, and syphilis. This group covers the class we usually find producing hemorrhage in the urethral tract, therefore blood in the urine is significant of pathology and should be located and treated.

Vesical hematuria is caused most frequently by tumors of the bladder, either benign or malignant. A benign tumor, if left undiagnosed and untreated, will, in time, be transformed into a malignant tumor. Prostatic hypertrophy, both benign and malignant, is next in frequency, then tuberculosis, granular cystitis, dilation of the vesical veins due to inflammatory condition of the prostate, ulcers, instrumentation, inflammatory changes in the bladder wall, external tumors producing pressure, and syphilis, which authorities have scarcely mentioned and consider a rare condition, but which, in my experience and observation, is a very frequent causation. It is evidenced by an infiltration and thickening of the mucous membrane, most frequently at the neck of the bladder and extending over the trigonum and the para-trigonal space. In a syphilitic bladder we may find a cluster of papillomas, other times sessile in character, again as a polypoid growth, and also a general infiltration, resembling very much an active malignant bladder, but it is not so painful nor does it bleed, to the same extent as the malignant.

I have had quite a number of these cases of syphilitic bladder in my experience, and read a paper on this subject before this section two years ago. In that, I emphasized the necessity for a Wassermann test in all bladder pathology.

Ureteral hemorrhage is due more frequently to tuberculosis, than calculi, in its passage or becoming lodged in the tract, traumatism, and torsion, due to movable kidney. There may be other, but these are the most frequent causes. Therefore, this is significant of a pathological condition and calls for a true diagnosis.

Hematuria arising from the kidney is frequently due to a pyelitis, both acute and acute exacerbation, also to erosions of blood vessels caused by a movable calculi, to pyelo-nephritis in certain stages, to a pyonephrotic kidney in certain stages of suppuration, to nephrolithiasis, to hydronephrosis, to tumors of the kidney, which are considered by a great number to be the most frequent cause, and to tuberculosis, which is the next in frequency.

The term symptomless hematuria, which is used so unfortunately, applies to a group of

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cases in which no cause for hematuria can be demonstrated. This expression has been used to the patient's incalculable harm. If the physician, by the usual method, fails to locate the cause, he is inclined to pronounce it symptomless hematuria, thereby excusing himself and giving up the search. The word symptomless is a misnomer and should never be used. It is far better to confess that we have been unable to locate the exact origin and then continue the search until it is found. In a few cases of my own, this so-called symptomless hematuria has proven to be of syphilitic origin, and is due, I think, to a syphilitic infiltration of the mucous membrane of the pelvis, calices, tubules, and glomeruli. In this case, exertion and straining will produce a hemorrhage which very quickly subsides with rest, and which also responds beautifully to appropriate antisyphilitic treatment.

The development of hematuria in children is always suspicious of tuberculous pyelitis, pyelo-nephritis, and renal growths or tumors. As in other cases, this is nature's warning and calls for immediate investigation, as it is significant of grave and impending danger.

Diagnosis.

The diagnosis of hematuria of the genito-urinary tract has for its object the discovery, first, of blood in the urine, and, second, of the source of the hemorrhage. The presence of blood in the urine may be told by its color and by chemical and microscopical tests. The presence of red blood cells in the microscopical field is characteristic, and distinguishes true hematuria from hemoglobinuria.

In a systematic diagnosis it is necessary to have a complete history, then a thorough external physical examination. In the male, the three glass tests of urine, and in the female, the two glass tests should be made. Digital examination of prostate gland and vesicles is made. Search and determine whether or not there is a stricture. Visual examination of the urethral tract is made by cysto-urethroscope. This is preferable to the old endoscope, which was formerly used.

In vesical examination, the cystoscope should be used, the size depending on the age of the patient. At the first examination, because of certain complications, it is sometimes impossible to locate the source of bleeding, and in that case the patient should be placed in bed with complete rest, daily bladder irrigations and supportive treatment, and another attempt made. Then we can usually make the diagnosis. On account of the bleeding it is very difficult and a continuous irrigation through the cystoscope is necessary while making the examination. On account of the inflammatory condition of the bladder it is sometimes impossible to locate the ureteral orifices, and in that event, I use indigo carmine intravenously, and when the blue is emitted it tells us definitely the position of the orifice.

The diagnosis of ureteral hemorrhage and complications is most frequently made by the introduction of opaque catheters and radiography.

The diagnosis of renal hematuria in whatever form can be summed up as follows: Catheterizing cystoscope introduced in the bladder, each ureter and renal pelvis catheterized with an opaque catheter, urine collected from each kidney and specimens sent to laboratory for a complete examination, with instruction for a guinea pig inoculation for tuberculosis.

While the catheters are in the renal pelvis I make an indigo carmine functional test by injecting intravenously 10 cc. of .4 of 1% solution. In a normal kidney and even in a moderately crippled kidney, the blue will show through the catheters in from five to ten minutes. But when we have an advanced case of pyelo-nephritis, hydronephrosis, nephrolithiasis, pyonephrosis, tumors or suppurative conditions, no blue will appear in a reasonable length of time. So indigo carmine is a fairly accurate and quick method of determining the renal function.

Some prefer phenolsulphonephthalein, and I use that as a routine hospital procedure to get the combined renal functions. This is especially necessary before any serious operation is performed, as the prognosis is based on its findings.

The next step is the radiograph, with the opaque catheters in the ureters for a guide as to position of the kidney. If a stone is in the ureter or kidney, the radiograph, if properly made, will detect it. Frequently, if the kidney is enlarged or displaced, it will be shown by the picture. A second picture should be made immediately after injecting through catheter a thorium solution in each pelvis, and a pyelogram made which will show the size of each pelvis and calices.

So in making our examinations, the laboratory, the microscope, the cystoscope, the ureteral catheters, opaque solutions, and the x-ray are indispensable aids in arriving at an accurate diagnosis.

Conclusion.

Hematuria is of grave significance and is a symptom of a pathology which should be thoroughly worked out. The seriousness of hematuria has been disregarded too lightly by both the laity and the physician.

In hematuria, as in all other diseases, the progressive physician should be alert to dis-

cover early pathologic conditions in order that relief may be prompt and effective, thereby eliminating much suffering and many fatalities.

Discussion

Dr. J. Hoy Sanford, Muskogee: I would like to compliment Doctor Wallace on the paper. There is hardly anything that I believe can be added to the contents as brought out in regard to the finding of the real cause of hematuria, as he has so thoroughly demonstrated in his paper that the use of the cystoscope with the catheteral collection of urine and its examination will in most cases disclose the true cause; of course, at first the lower genital tract should be thoroughly looked over. I enjoyed the paper and want to thank Doctor Wallace.

Dr. E. L. Cohenour, Tulsa: I have thoroughly enjoyed Dr. Wallace's excellent paper; also the discussion. It seems to me that we frequently have hemorrhages from the lymphoid tissues in the veru-montanum. I should like to hear what Dr. Wallace has to say on this.

Dr. J. H. Hays, Enid: Mr. Chairman. As Dr. Wallace said, hematuria is a symptom of a serious disease, and the first thing that I want to know when a patient appears with blood in the urine is the source; then after the source, the cause. In my experience the most frequent frequent cause of hematuria has been neoplasms, a new growth of some kind; the next most frequent cause, injury; and the third, tuberculosis.

Beginning with blood in the urine, the first thing I usually do on inquiring into the source, is to ascertain if there is a history of an injury, has microscopic examination of the urine been made. Why? Because if the microscopic examination shows blood casts in the urine, I am pretty sure from the beginning that the source is in the kidney. If there are no casts in the urine, I am pretty sure the trouble is somewhere between the pelvis of the kidney and external meatus.

If you have an injury or trouble with a ureter, it can be quickly detected by an examination with a cystoscope. The cystoscope, unless you have an ulcer or a very irritable bladder, will tell you right away whether it is coming from one kidney or the other, or both.

In case there is blood coming from the ureteral opening, the question then arises, Where is the bleeding point? In the ureter; pelvis of the kidney; or the kidney itself? As stated before, if there are no blood casts, we can eliminate the kidney.

Now we have to determine the source in the ureter or the pelvis of the kidney. I have tried to solve it in this way, by passing a large catheter up the ureter about half way; if the urine coming through the catheter continues to contain blood, we know the source is higher up, or if it does not contain blood, we know the source is in the lower half of the ureter. If it does contain blood, then pass the catheter up into the pelvis of the kidney. If the urine coming through the catheter now contains blood, you know the source is in the plevis of the kidney.

The most frequent cause, as just stated, is neoplasm. If you find blood coming from the pelvis of the kidney, no casts in the urine, as the Doctor has stated, the x-ray will help to make the diagnosis, as a small growth in the kidney pelvis will produce a distortion of the radiograph. If it is a chronic inflammatory condition, you will have an enlarged and "rounded out" kidney pelvis with considerable destruction of the calices.

There is a form of hematuria due to bleeding from the pelvis of the kidney that is difficult to diagnose and that is in those cases where the blood comes from the calices themselves without any apparent destruction. These cases are usually classified under the term, "essential hematuria." The only way that I can diagnose this class of cases is by the process of elimination. That is there is no destinction of the kidney pelvis; no history or injury; no infection, etc.

If we find that the hemorrhage is coming from somewhere in the ureter and no history of an injury, we are practically sure that it is due to neoplasm, and by passing a large ureteral catheter we can detach the growth and thus remove the cause. Of course ureteral hemorrhages might be due to an ulcer produced by a stone and by dilating the ureter with a large catheter the stone will usually pass down and the erosion will heal itself.

One of the most troublesome forms of hematuria, is hematuria from new growth in the bladder. My experience in the removal of the papilloma of the bladder with the electric cautery has not been as gratifying as many have reported. I now have a case of hematuria that I saw when I first came to the state, a little over four years ago. I have removed (or I thought I had) by the electric cautery six different times in the past four years. I saw him only yesterday and the patient stated that he had just had another hemorrhage. I examined him again and found that the growth is nearly as large as a hen's egg. This growth is made up of a great number of small growths spreading out over all the bladder when partially filled with water. This happens to be one of those cases that I have not been able to operate. In my mind there isn't any question

but this growth is becoming malignant, but the patient is comfortable most of the time and apparently in excellent health and I have not been able to persuade him to look at this condition as seriously as I do myself.

There is another class of cases of hematuria, secondary to contagious disease, especially scarlet fever and measles. This class of cases needs no interference, the history is usually clear and rest in bed nearly always effects a cure. Hematuria due to malaria is the exception to hemorrhage of the kidney without casts. The diagnosis can be made by examining the patient's blood for the malaria parasites.

The important thing about cases of hematuria due to injury of the kidney is the treatment. I was taught, and I presume a good many of you were taught, that in injury of kidney, the thing to do was to put the patient to bed and keep him quiet. I am sorry to say that I followed this teaching for several years with two or three fatalities that could have been prevented by surgical interference. In my judgment whenever there is profuse hematuria, due to injury of the kidney, the kidney should be cut down upon and packed and not removed unless severely lacerated. Excellent results will follow by packing the injured portion of the kidney with gauze to control the hemorrhage for twenty-four to forty-eight hours.

In hematuria due to tuberculosis, the source is practically always the kidney and the only remedy is the removal of the kidney, providing only one is affected; if both are affected, nothing can be done except general treatment of patient.

Doctor Wallace, closing: Mr. Chairman. In making the diagnosis, Doctor Hayes mentioned about finding or failing to find casts in the urine. This is often the case. One day a specimen of urine will contain numerous casts and at other times none will be found, so it is necessary to make daily urinary analysis for a number of days in order to get a true interpretation.

In pyelitis we will frequently find pus on one examination and entirely normal specimen the next day, so in these conditions we must make numerous tests. Also cultures to be made from catheterized specimens and then make animal inoculations, especially so for suspected tuberculosis. The symptomless or painless hematuria which was mentioned, I wish to emphasize the fact that it is an expression of some serious condition. The main object of my paper was to impress upon the people that whenever you find blood, there is some pathology. It matters not from what tract, but we should try and locate that particular place, whether it be in urethra, bladder, ureters, or kidneys. It means that something is wrong and is a warning of danger.

Someone mentioned urethral granulations causing hematuria. We frequently find granulations in the bulbo-membranous and prostatic urethra which will produce bleeding, but it is mild in character and usually noted at the termination.

With the use of the cystoscope, catheters and x-ray, we can usually ferret out and determine the source and character of the hematuria.

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DIAGNOSIS AND TREATMENT OF STRICTURE OF THE URETHRA*

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The successful diagnosis and treatment of stricture of the urethra require a knowledge of anatomy, patience of high order, and no little technical skill.

The diagnosis is usually easy. Any stricture found in the penile urethra is organic. Behind this it may be spasmodic. The history of the development of the urinary symptoms is of great importance in making a diagnosis. True, or organic stricture, always developes slowly, since the constriction is the result of scar tissue formation. A spasmodic stricture may develop in a few hours following inflammation or irritation of the urethra and cause complete retention. An impassable stricture, causing complete retention, coming on suddenly, is always spasmodic. An organic stricture partially occluding the urethra may be made complete by spasmodic contractions so that we have both kinds to contend with at the same time.

Strictures of the urethra are, in the vast majority of cases, due to gonorrhea. They may, however, be the result of trauma or unwise medication. Generally speaking, a stricture that will not admit a No. 24F. sound should be treated. Strictures above this size where there is no infection behind, may be left alone provided they are producing no unpleasant symptoms. However, with a specific infection lurking behind a stricture, of whatever size, radical incision or dilatation must be done.

The most common symptom of stricture is a purulent discharge. When a discharge from gonorrhea has lasted six months or longer, stricture is usually present. The first subjective symptom is increased effort in voiding. The next is a modification in the size or shape of the stream. This may be flattened, twisted, or expelled in two jets. It must be borne in mind, however, that prostatitis, urethritis, or urethral spasm, may produce the same changes in the stream. Perhaps the most characteristic change is the loss of force with which the stream is projected. At first the stream maintains its force due to the compensatory hypertrophy of the bladder muscle. As the stricture narrows this hypertrophy fails to overcome the obstruction and the stream emerges without force and falls perpendicularly or dribbles. In these cases the semen also is not ejected with force and may regurgitate into the bladder. When the hypertrophied bladder muscle fails to overcome the resistance offered by the stricture, retention with its consequent ills results. Long before this stage is reached the stricture should be recognized and treated if the best results are to be obtained. After extravasation or fistula has occurred the treatment is much less satisfactory and the end result less promising.

By far the most satisfactory instrument utilized in making a diagnosis is the bougie a boule. The distance from the meatus can be measured accurately and the size of the stricture calibrated. The firm resistance offered by a true stricture and the tenacious hold that it exerts when the instrument is withdrawn distinguish it from spasmodic stricture which is more yeilding, feels "softer" and does not exert such a decided pull. Should doubt still remain after a careful examination with the bougie, an injection of 1% novocaine followed by an examination will clear the matter up. In extremely sensitive patients a general anesthetic may be necessary. With strictures so small that a bougie can not be used, resort must be had to the whalebone filiform with a grooved sound, or the "whip-end" flexible catheter.

The urethroscope is a valuable adjunct in clearing up the diagnosis. The straight instrument with the direct light should be used. The strictured area seen through the urethroscope does not fall together in the radiating folds as seen in the normal urethra, but the opening is held apart by the scar formation. A distinct, whitish, glistening band is seen encircling the canal. In recent stricture this band is usually inflamed or eroded.

After a diagnosis as to size, location and character, the method of treatment must be selected. We have to select from dilatation, incision, excision, and electrolysis. Stricture of the meatus is not dilatable and must be cut. Strictures of the anterior urethra respond rather poorly to dilatation and I find it more satisfactory to incise them at once. Those found in the membranous portion will, in a majority of cases, respond well to dilatation. Extensive tortuous strictures of the deep urethra, of long duration, yield very poorly to dilatation. Because of the great amount of scar tissue present, and their tendency to recur when treatment is discontinued, incision is not always successful. In these cases excision of the strictured area should be resorted to.

Dilatation of a stricture may be done with sounds, bougies, or the dilator. When dilatation is practiced, the operator must be careful that it is not carried out too rapidly. An increase of two sizes at one sitting is usually enough. A long enough interval between

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stretchings to permit the soreness to diasppear must be allowed. After the maximum dilatation has been reached, it is necessary to continue the soundings over a period of time with gradually increasing intervals. I make it a point to have these patients report back for examination every six or eight months after an apparent cure, to make certain that the stricture is not reforming.

Strictures of the pendulous urethra should be treated by incision. This may be done easily with the urethrotome with a concealed blade. The incision should be begun well behind the stricture and carried into the healthy tissue in front. The incision should be deep enough to completely sever all the scar tissue. To insure that the stricture has been cut deep enough, a large sized sound should be passed immediately. At regular intervals of from six to eight days the soundings must be continued until the wound has healed. It is well to have these patients report back for examination every six to eight months. The bleeding in these cases is easily controlled by pressure. An urethral injection of novocaine 1% retained for twenty minutes will render the proceeding practically painless.

Strictures of the deep urethra that are not amenable to dilatation may be incised with the urethrotome. The bleeding in these cases is sometimes very profuse and difficult to control. Better and more lasting results are obtained, I believe, by external urethrotomy. When this method is used the stricture may be incised or excised as indications require. Treatment of strictures by electrolysis has deservedly fallen into disuse.

I have purposely refrained from taking up in detail the technic of the various procedures outlined. My aim has been to lay down the general principles as I see them and meet them in my work. I wish to speak here, in closing, a few words of caution. While the urethra will, and frequently does, stand for a great deal of abuse, the utmost care and gentleness should be used in all manipulations.

The confidence of the patient in the operator is no small factor in the treatment. Unnecessary roughness and undue haste on the part of the operator have often caused patients to refrain from treatment until the condition has far advanced. Bear in mind also that gonorrhea can not be cured behind a stricture.

Discussion

Dr. W. B. Pigg, Okmulgee: Mr. Chairman, and Gentlemen of the Convention. Dr. Taylor has read you such an excellent paper that it seems a pity that we couldn't have a better man to open the discussion than myself. As most of you know, when I write a paper and read it, everybody stays awake; and when I speak, it is very difficult to keep them awake. I am a good deal like Rosseau on that certain occasion that he had to address a body of men. He felt his timidity from doing so and wrote his speech out and recited it down in the cellar until he got it very proficient—every word of it—and when he got up before the learned gentlemen he forgot every word of it. I am in a good deal the same position when I come to speak extemporaneously. I forget the best things I want to say and say frequently the things that I don't want to say.

A stricture, however, is something that we have with us always, and by always, I mean to be literally correct. It is a result of carelessness, and they get themselves in such a condition that they cannot urinate, and then the doctor comes along and sees them and he gets them dilated so that they can get along tolorably well, and he never does see them any more until they get it again. So, you have them always with you. At least I do. I don't know whether the practice of you gentlemen is different from mine, but I am treating patients now that I treated sometime ago when I first located in Okmulgee and I will probably treat them again next year unless somebody else gets the case. I give to them all the care and caution and advice that I can, but still they are backsliders from the physician's office, and they are a source of a great deal of trouble to themselves and to some of the physician as well.

The treatment of strictures I do not feel competent to take up at this time, because I came here to learn and not to instruct. I just desire to pass the bouquet around to the doctors *multum in parvo* because I don't think it would be possible to put in the same number of words as much useful information and leave out as much useless information as the doctor has incorporated in his paper. The man who opens the discussion is a kind of a short stop between the bulk of the intelligence, and a connecting link between the intelligence of the man who read the paper in the first place, and realizing that and hoping that if I could remember to differ from the doctor on some things that would provoke a discussion I would gladly do so, but since I can't I will thank you for the honor of addressing you and sit down.

Dr. E. L. Cohenour, Tulsa. I want to compliment Dr. Taylor on his excellent paper. He brought out all the points, I think. There are just a few points I would like to emphasize and some of them that I had in mind were these. The getting of the history, I think is very important, because lots of times a man will come in and will have symptoms of a stricture and if you get the history of the case

you will find that that is quite important in these cases. And then I also wish to emphasize the importance, and I think I have, of having a microscopic examination made of the discharge which is practically always present, and I try in that way, of course, to find out the determining infection. In cases where there is an acute gonococcic infection you have to be a little bit careful about instrumentation, particularly where you have an acute inflammation of the urethra because of the danger of injury to the patient, and you will lose a good patient.

Dr. Curtis R. Day, Oklahoma City: The paper was a most excellent one, and there is but one thing I want to emphasize. That is the strictures we meet with are the result of scar tissue, and it is the action of the scar tissue that produces the stricture, and that in the severing of this scar tissue we invariably produce more scar tissue. We should also warn these patients that following operation a more severe stricture must result unless they are properly followed up and properly treated. I think that the mistake that most of us make is in failing to impress upon the patient at the time we divide the stricture that they must continue treatment as a matter of years. Therefore in that way we should avoid the proposition of discharging a patient and permit him to come back again. Dr. Pigg possibly don't discharge his patients, but they simply go away from him and then come back. If we should impress that point—if we can emphasize that sufficiently to impress it upon the minds of the patients, and the necessity for that long continued dilatation, why we will have accomplished the best results.

Dr. W. J. Wallace, Oklahoma City: Just a few points in discussing this paper. First, a stricture—once a stricture and for many years you will have a stricture—more or less the rest of your life—therefore, as Dr. Day says, they must be instructed and advised to return and keep them under observation.

In the treatment of stricture the first thing is prophylaxis. Stricture begins usually—we are speaking now of a stricture due to gonorrheal infection—strictures begin in that stage as chronic ulcers—just at the beginning of the C. G.—usually about the sixth and running over into the eighth and tenth week. It begins first as thickening and swelling and reddening of the tissue, and this, if untreated—if the patient is discharged as cured and untreated at this time, some year or two years or five years later we find that this patient has developed this fibrous scar tissue. So, the best thing to do before we discharge our patient is to see that the canal is in proper condition—no stricture formations, and begin to treat it at that time.

Stricture is a serious condition and the laity don't seem to appreciate that fact. Stricture is considered below a twenty or even a twenty-four to be a serious condition. It requires a great deal of work on the bladder and on the prostate and the other ajacent organs to expel this urine through the small canal. Therefore you are bound to have trouble over a long continued time and maybe nephritis may result. So, it should be impressed upon the patient—the seriousness of a stricture and thereby avoid some complications of the kidney later on.

In my earlier practice quite frequently I operated for stricture through the external urethra just below the scrotum, but in the past few years that procedure has been discarded. With a small * * * attached to the sound of the catheter we can get our starting point and can gradually enlarge the stricture to the ordinary size without making any kind of an operation. I think that in the treating of a stricture, if it is a stricture of small size, we should give an anesthetic, either general or else a spinal anesthetic, which is very easily done, and dilate the stricture at one setting if it is a stricture of this size. It takes a long time, very tedious, and a great deal of pain attached to it, to work it slowly up to the size we should carry our dilation. So, I usually advise, if it is a small one, a general anesthetic or a spinal anesthetic and stretch all at one time.

About cutting the stricture. I don't believe much in that at this time. There is only one form that I consider should be incised; that we use the ureterotomy on. A stricture in the posterior urethra should never be cut. You can do as much with gradual dilation and you will not have hemmorhages nor produce scar tissue, but the stricture in the anterior urethra is the one that we use the ureterotomy on. There is a resilient stricture and one which we can stretch and withdraw the sound, and this stricture will contract—just comes down like a piece of rubber or elastic. We can do that time and time again and make no progress whatever, and that one, we should cut; otherwise, do not. I think that we can accomplish better and safer results to our patient. And every time you use the ureterotomy and cut this tissue you have scar tissue resulting, and I think you do better to use just gradual dilation.

Dr. J. C. Mraz, Oklahoma City: This paper has already been thoroughly discussed. I think the paper was a very good one. I would like to cite a case that came to me not long ago that might possibly be instructive. It was not truly a stricture, but an allied condition. The patient came to me with the following history: about a week previous he met

with an accident; had fallen astride of a two-by-four and from the time of the injury he was entirely unable to pass his urine; had a complete retention; the doctors that he had called upon in his home town took turn about trying to catheterize him, unsuccessfully each time. They used soft rubber catheters and they used metal catheters; they performed a suprapubic tapping on the bladder several times during the week that they were attempting to catheterize him and when he was brought to me his bladder was again distended almost to the umbilicus. We prepared immediately for an external ureterotomy, but before doing it I thought it would do no harm to attempt to use the catheter on him. I took a silk elastic catheter, cocainized the urethra, and the catheter slipped right into the bladder accidentally, of course, happening to catch the torn urethra and it was, no doubt, a case of a ruptured urethra due to the fall, and passed into the bladder. I mention the point because I think the elastic silk catheter is very adaptable to this kind of procedure. It is not resistant enough to do damage and still not as elastic and does not give as easily as a soft rubber catheter, and it is more apt to follow the curve of the urethra. I allowed the catheter to stay in situ for forty-eight hours and after that I had very little trouble in passing sounds and I still pass a sound at long intervals to avoid stricture forming.

Dr. C. T. Hendershot, Tulsa: I am not a genito-urinary surgeon, but I have practiced medicine for twenty-four years and my work on this line was more along gonorrheal strictures than anything else. But I, myself, have been the victim of a stricture, possibly not of as violent a character. As Dr. Cohenour knows, about four years ago I was unfortunate enough to slip in getting out of my buggy and I fell across the wheels and produced a traumatic stricture with an abscess formation and all the things that go with it. I lay up in bed for six or eight weeks and recovered sufficiently to go the Baltimore and consult Dr. Young, and he advised me to go back to Tulsa and have it dilated, which I did for five or six months, as most all of them did with a little bit of relief occasionally. But it was a condition that I had to go through with all the time. And two years ago the condition became so serious that on the advice of some of my good friends at Tulsa I went to Kansas City to a specialist. They put me on the operating table and put me through a dilatation one day and waited four days and then repeated it the second time. The pain caused by this procedure was intense and they pronounced it the worse case they had ever experienced in Kansas City. But they got the dilatation through and I came back and had to wait perhaps for a matter of three or four months, and the condition developed again. Associated with this I had to wear one of these nice rubber tubes down my leg. It was a very unpleasant thing; it was running into a septic condition with a chill every two or three weeks. My mind was on this continuously. So, I made up my mind to see somebody else. I looked over the field and they said Dr. Banks at St. Louis was a specialist, and while waiting for some of the patients to get well so I could get over to Saint Louis the urethra ruptured. I went to Saint Louis and when I got to Springfield I became unconscious and arrived at Saint Louis with a temperature of a hundred and five and a pulse of a hundred and forty-two. They said there was no use of doing anything but operating on the urethra, which they did. I came off of the operating table in a very bad condition and they didn't think I could possibly live, but I did, and gained about forty-four pounds. I have had absolutely no symptoms. I can pass a good stream of water now and it is a pleasure for me to urinate. But I go to my friend, one of the genito-urinary men over at Tulsa, every two or three weeks and have him use that nice dilator on me, and I am able to have it done without a local anesthetic.

In talking to Dr. Lewis before I left the hospital, I was of the same opinion that Dr. Wallace was, that posterior ureterectomy was a thing of the past—but he said that he was using it a great deal and that they had adopted it almost as a universal treatment.

Now, about special and severe chronic cases where the scar tissue was so hard that you couldn't get trhough it with a sound—and Dr. Wallace also spoke of spinal anesthesia. Now, from what I can learn, spinal anesthesia is not being used at all any more by the men around Saint Louis. Some I talked with in Louisville recently who do this kind of work were afraid of it. They are all scared of it back there. Doctors there won't use it.

There is one point that I haven't yet heard brought out, and perhaps it has no distinct bearing on this discussion, but I want to speak of the rapid emptying of the bladder after dilatation. In Kansas City, after this rapid dilatation they put in a very large sound—I don't know just what size it was—and left it either six or eight hours with instructions to the nurse that when I felt a desire to urinate she should let me up. But while she was gone out to her dinner I got up and stepped into the bathroom and emptied my bladder. When this time came around the nurse happened to be out to her meals and I removed the straps and left the room and stepped into the bath room and emptied my bladder—about a gallon

of excessive urine, and I promptly collapsed. They got me back in bed, and it taught me a lesson. I went up to Saint Louis and I told them up there when I got ready to empty my bladder I didn't want any more rapid emptying.

I know some men have had some experience, and as a man who has had experience with a stricture I want to advise you genito-urinary men that they appreciate a whole lot just shooting a little cocaine down in that urethra before shooting the sound down. It is much different to you.

Dr. Taylor, closing: I purposely refrained in that short paper from mentioning the cure of a stricture. I spoke of treatment for the relief of strictures, but not the cure. I think the saying is true, "once a stricture, always a stricture." The scar tissue is there permanently. We may enlarge the opening but we still have the scar tissue present. The discussion I must say was very instructive to me. Relative to the spinal anesthesia, personally I never have used it and I cannot see its advantage over a general anesthesia. If the local anesthetic will not handle the condition, I would be a little afraid to attempt the spinal anesthetic. I would prefer ether.

Dr. Hendershot's recital of his own condition was very interesting to me, and it bears out a point that I have always mainatined, and that is, that we do not do enough external urethrotomies. We know a dense scar tissue has been formed over a long period of time. We dilate these tissues and get simply a temporary relief. We will get a longer relief by the incision of a great deal of this scar tissue and letting new tissue form.

As to the excess of urine, I take it for granted that men who have been doing this work would not knowingly empty a distended bladder at once. Those that have done it have seen the shock that almost invariably follows. So, as a matter of routine, we would not empty an over distended bladder except by degrees.

A Cheaper Way

"My dear sir, nothing but an operation will save your life."

"What will it cost?"

"About $500."

"But I have only $150."

"In that case let's try what these pills will do."

According to Dr. Rosa, of the United States Bureau of Standards, 93 cents out of every dollar of Uncle Sam's money last year went for war—past, present, or to come—and one cent went for education and improvement of the public health.

THE DIAGNOSTIC VALUE OF BLOOD CHEMISTRY*

WM. H. BAILEY, A. B., M. D.
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The word diagnostic is to be considered as including the term prognostic, as blood chemistry is often of considerable value in this special phase of diagnosis.

The study of pathological anatomy has been broadened to include pathological physiology. The physician today is not only studying the etiology and the end results of disease, but is working out the development and progress of diseased conditions.

The blood probably is the most important tissue of the body as it carries nutrition to the cells of the body and removes the products of metabolism.

These waste products may be changed in the blood, assimilated in other tissues or thrown out of the body by the organs of excretion, especially the kidneys.

The cellular elements of the blood have for years been studied by the physician to give him certain valuable information that he could not obtain by his physical examination of the patient. It is not surprising, therefore, that a study of the chemical composition of the blood plasma should yield valuable data as well.

Whole blood is composed of the cellular elements and the plasma. The plasma contains certain nitrogenous elements along with organic and inorganic salts, fats, gases, etc. The nitrogenous elements of the plasma are divided into the proteins and the non-proteins. The proteins include serum albumen and serum globulin. The non-protein group includes urea, uric acid, creatinin, creatin, etc. The other classes include sugar (glucose), sodium chlorid, cholesterol, ammonia, etc.

As time will not permit of discussing all these various substances, we will confine our remarks to those non-protein nitrogenous elements, urea, uric acid, creatinin, and creatin, which go to make up the total non-protein nitrogen; and to the organic substances, glucose and cholesterol. These are the substances that are meant when one speaks of blood chemistry in the limited sense of the term. It is the determination of these that is becoming of value to the physician. The estimation of the carbon dioxid combining power of blood plasma, the H-ion concentration of blood, and the various other tests, to establish the presence of acidosis, must be omitted at this time although their value is probably even more firmly established than the points under discussion.

*Read before the Oklahoma County Medical Society,, December 11, 1920.

The first point that we wish to emphasize is that diagnosis, in general, is impossible from the blood chemical tests alone. These, like all other laboratory procedures, must be considered only as additional clinical symptoms. Their value must be determined by weighing them in association with the other data obtainable.

The normals for the factors under consideration, although varying somewhat, as given by the different authorities are about as follows:

Non-protein Nitrogen	25- 35 mg. per 100 cc
Urea Nitrogen	10- 18 mg. per 100 cc
Uric Acid	0.5- 3 mg. per 100 cc
Creatinin	0.8- 2.5 mg. per 100 cc
Creatin	5- 10 mg. per 100 cc
Sugar (Glucose)	60-120 mg. per 100 cc (usually reported 0.06-0.12%)
Cholesterol	150 mg. per 100 cc (usually reported 0.15%)

A brief outline of the technic used in determining the factors should assist us in fixing them more firmly in our minds. As nearly all of these substances show a "digestive rise" after the taking of an ordinary meal, the blood should be collected from 4 to 6 hours after the taking of food, preferably in the morning before breakfast. About 11 cc. of blood are collected from the vein of the arm the same as for a Wassermann test. This is transferred immediately to a bottle containing from 20 to 25 mgm. of potassium oxalate to prevent it from clotting. Mix well and measure out exactly 10 cc. into a dry flask, add 7 volumes of distilled water, 1 volume of sodium tungstate solution, and 1 volume of 2-3 N, sulphuric acid. Mix well during the addition of the acid and allow to stand for a few minutes until a chocolate brown color appears, when all the proteins of the blood will have been precipitated. Filter through a dry filter into a dry, clean flask, this filtrate contains all the non-protein nitrogenous elements, also the glucose, and is now ready for the respective tests.

For the non-protein nitrogen 5 cc. of the filtrate are subjected to the micro-Kjeldahl method for nitrogen determination in which the nitrogen as ammonia is separated by distillation, Nesslerized, and compared against a standard containing a known amount of nitrogen, in a Duboscq colorimeter.

The urea nitrogen is usually about 50% to 60% of the non-protein nitrogen, of which of course it is a part. 5 cc. of the original blood filtrate are digested at 40 to 55 degrees C. in a large test-tube with a small amount of urease solution (a soluble enzyme of the soy bean or jack bean). This urease transforms the urea to ammonium carbonate from which the ammonia is removed by distillation and estimated in a colorimeter the same as for the non-protein nitrogen.

For the uric acid 10 cc. of the original blood filtrate are treated in a centrifuge tube with a solution containing silver lactate and lactic acid, centrifuge for a few minutes to separate the silver urate which is formed as a precipitate. The silver urate in the bottom of the centrifuge tube is treated with a solution containing sodium chlorid and hydrochloric acid. This sets free the uric acid from the silver urate and it is then in solution. Allow to stand for a few minutes and decant the supernatent fluid. To this add separate solutions of sodium sulphite, sodium cyanide and sodium carbonate. A standard of known uric acid content is also treated in the same way. Dilute the unknown solution with a little water and add phospho-tungstic acid reagent to both the unknown and the standard. A blue color is here developed in each. Add distilled water to each to bring volumes up to 50 cc. and compare colors in a colorimeter.

In the creatinin determination 10 cc. of the original blood filtrate are treated in a small flask with sodium picrate solution. A yellow color developes somewhat deeper in color than the picrate solution alone. A known solution of pure creatinin is treated in the same way. These after standing for a few minutes are compared in a colorimeter.

Creatin is determined by first dehydrating it by adding weak hydrochloric acid and autoclaving for about 15 minutes at 130 to 150 degrees C., when it becomes creatinin. The total creatinin may now be determined as above and by subtracting the pre-formed creatinin from this, the creatin is obtained.

For glucose 2 cc. of the original blood filtrate are heated in a 25 cc. test-tube with an alkaline copper tartrate solution exactly 6 minutes in a boiling water-bath. A standard solution of pure glucose is treated in the same manner at the same time. After cooling, each is treated with tungstic-molybdate reagent, a beautiful blue color developing. Fill each with distilled water to the 25 cc. mark, mix and compare in a colorimeter.

Cholesterol occurs in the blood both in the corpuscles and the plasma and therefore whole blood, rather than a blood filtrate, is generally used in its determination. One cc. of whole blood is mixed with plaster-of-paris, and dried; from this the cholesterol is extracted with chloroform. A definite volume of this extract is treated with anhydrous acetic anhydrid and concentrated sulphuric acid. A standard of pure cholesterol is treated in the same way or a certain percent solution of the dye naphthol green B. may be used. A color comparison is made in a colorimeter.

Since the kidneys are the most important regulators of the amount of non-protein nitro-

gen in the blood, it is logical to suppose that in diseases of these organs the estimation of these elements would be of greatest value. This had been found to be the case, but there are other factors which influence these amounts which must always be considered at the same time. Mosenthal considers four factors that tend to increase the non-protein nitrogen in the blood: (1) retention of the elements by the injured kidney, (2) inspissation of the blood due to loss of water, (3) increase of protein catabolism, (4) the chemical combination in which the non-protein nitrogen exists. Other authorities add a fifth and sixth, a weakened circulation and increase of protein intake.

Chace and Myers state that in beginning chronic interstitial nephritis these factors begin to increase early, while Webster finds little increase in chronic interstitial and chronic diffuse nephritis until hypertention and danger of uremia exists. Practically all authorities are agreed, however, on the fact that the uric acid is the first to accumulate in the blood, then the urea, and finally the creatinin. This "stair-case" fact of retention would indicate that uric acid was the most difficult for the kidneys to excrete, urea next, and that creatinin is the most easily to eliminate as it is the last to accumulate in the blood. This is an important prognostic point because those cases that have a high creatinin retention are the ones most likely to go into uremia and end fatally.

Mild parenchymatous nephritis usually shows little retention provided sufficient uninjured kidney substance remains to carry on the normal function. In these cases, however, if a sudden retention of urea and creatinin is discovered, it would indicate that uremia was impending and drastic methods should be instituted to avert it.

In the majority of nephritis cases these elements increase in the blood in ratio with the severity of the condition.

Chronic passive congestion of the kidneys very seldom causes much retention of these elements.

In cases of unilateral kidney involvement, as pus kidney of one side, blood chemistry gives very little assistance in finding out how much work the other kidney is able to do. There is no way by this means to differentiate whether the uninjured part of the diseased kidney is doing more work than the supposedly well kidney.

The finding of uric acid accumulation in the blood in practically all cases of nephritis would indicate that the interpretation of the uric acid diathesis, so long considered pathognomonic of gout, must be corrected. It is, however, true that practically all cases of gout show a uric acid retention, but the non-protein nitrogen in the blood is usually within normal limits. This is of diagnostic value, as in non-gouty arthritis cases the uric acid and the non-protein nitrogen are both increased.

In determining renal function blood chemistry has become a valuable aid, to be used in conjunction with the phenolsulphonephthalein test of Geraghty and Rowntree, the test meal for renal function of Mosenthal and Lewis, and Ambard's coefficient or its modification by McLean. The phenolsulphonephthalein test is very reliable but it only shows the eliminating function of the kidney at the time the test is taken. It cannot indicate the retention of nitrogen constituents which may have been accumulating in the blood for some time. That is, blood chemistry shows or rather is a measure of the difference between the nitrogenous elements produced and those eliminated, while the phenolsulphonephthalein test is an indication of the elimination alone.

The renal test meal for kidney function consists of 2 hour collections of the urine during the day while the patient is on a full standard diet, no food or fluid to be taken except at meal times and a 10 or 12 hour specimen collected at night. A normal test should yield a maximum specific gravity of 1018 or more, a variation of at least 9 points between the highest and lowest readings, and the night urine should be of 400 cc. quantity or less and of 1018 specific gravity or more. The NaCl and nitrogen excretion may be studied at the same time.

Ambard's coefficient expresses numerically the relation between the concentration of the urea in the blood and the rate of excretion of urea in the urine. This has been found to be fairly constant in normal individuals and is recorded as 0.08 to 0.09. A rise in this coefficient indicates a renal insufficiency. Some authorities, and these include Folin, are inclined to be rather skeptical of the additional information given by Ambard's coefficient.

Each of these measures has its individual place, each has certain characteristics of value, and from each important deductions may be drawn. If any one process is to be taken as a method of choice to the exclusion of all others, probably blood chemistry will give us the most valuable information.

In the field of surgery, operative risk is largely judged by renal function. The presence of kidney disease as shown by albumin and casts in the urine does not show the true ability of the kidneys to eliminate sufficiently. In urologic surgery, especially in those cases of enlarged prostate in elderly men and in other mechanical obstructions to the out-flow of the

urine, it is of the utmost importance to find out as near as possible the exact functional ability of the kidneys. The prognosis of the case largely depends on this factor.

At the present time not much information of value can be obtained from blood chemistry in acute conditions such as pneumonia and severe febrile conditions. Some slight increase is usually found in some of the non-protein nitrogen factors, but it is probably best to assume that either a toxic nephritis, some prevous kidney insufficiency, or an impaired circulation is the cause of the retention and not the disease itself.

In the so-called cardio-renal conditions blood chemistry is proving of considerable value. It is of assistance in differentiating the cardio-vascular with secondary renal involvement from the primary nephritis cases with secondary cardio-vascular conditions. The true cardio-vascular cases show but little retention of the non-protein nitrogen elements in the blood, while in the renal cases a considerable accumulation of one or more of these factors is found. Since the treatment of these two classes of cases is so different, it is of the greatest importance that as exact a differentiation be made between them as is possible.

Chase, in a recent article, has shown that cases of essential hypertention may be differentiated from those cases of chronic nephritis with hypertention by means of blood chemistry. The non-protein nitrogen elements in the blood are much higher in the nephritis cases. As a more favorable prognosis can be made in cases of essential hypertonia, this is an additional valuable point.

In diabetic cases the true condition of the patient, so far as carbohydrate metabolism is concerned, can be more accurately ascertained by estimation of the blood sugar than by the percentage of sugar in the urine. It has been found that hyper-glycemia may exist without glycosuria, also that we may have sugar in the urine and no increase in the blood. This last fact brings up the question of the "renal threshold" for glucose and also the existence of the so-called cases of "renal diabetes." One observer at an army hospital in a recent article states that there are undoubtedly cases which should be classed as renal diabetes. The kidneys appear to be unable to withhold the sugar from coming through into the urine even when the quantity in the blood is well within the normal limits. Whether or not some of these cases ever go on into a true diabetes has not yet been definitely established.

The glucose tolerance of a patient, which is the rise of his blood sugar following the ingestion of 100 gms. of glucose, has been found of some value in certain conditions. In cases of true, well marked diabetes the blood sugar is found to be higher two hours after the ingestion of the glucose than at the one hour period. This is just the reverse of the condition found in a normal individual. In mild diabetes where the blood sugar is but little above the normal before the test, we find a rise well above that seen in a normal person after the test, and this rise is sustained into the second hour. Some work along this same line has been done in carcinoma cases, but definite deductions cannot yet be made.

It is a well known fact that diabetes may often be complicated with nephritis. It also has been found by blood chemistry that in many cases of severe nephritis there is an increase of sugar in the blood. Whenever an undue amount of sugar appears in the blood and urine of a diabetic, the other blood chemical tests for the non-protein nitrogen elements should be made in order to ascertain if possible the existence of an accompaning nephritis. Often this nephritis may be as much a determining factor in the death of the patient as the diabetes itself.

Considerable attention has been given to the importance of cholesterol in the blood. Gorham and Myers in a series of 200 cases observed a hyper-cholesterol-emia, though not invariably so, in obstructive jaundice, cholelithiasis, arterio-sclerosis, nephritis, diabetes and pregnancy. A low cholesterol content is found in cases of pernicious anemia and the cachexia of malignant tumors. The fact that a small increase has been reported in so many conditions and that so few of the workers agree on these findings has caused Denis to conclude that the cholesterol determination in the blood at the present time at least is of no value in diagnosis or prognosis.

Conclusions

1. Diagnosis, in general, is impossible from blood chemical tests alone.

2. A high retention of non-protein nitrogen elements in the blood means renal involvement. This is usually in direct ratio with the severity of the lesion. It may be primary or secondary to some other condition, as cardio-vascular disease or diabetes.

3. In early chronic nephritis, which often at first gives only symptoms of gastric disturbance and negative urinary findings, blood chemistry is of value in discovering the presence of the disease.

4. The amount of creatinin in the blood may be used as a valuable prognostic sign in uremia cases.

5. Increased blood sugar is a constant finding in severe nephritis.

6. Cases of essential hypertention may be differentiated from hypertention accompaning chronic nephritis.

7. Primary nephritis cases with secondary cardio-vascular conditions may be differentited from primary cardio-vascular disease with secondary kidney involvement.

8. Blood chemistry is of great assistance in estimating renal function and is probably the most valuable single method.

9. Persistent high blood sugar suggests diabetes or a diabetic tendency, even when no sugar appears in the urine.

10. Blood chemistry is the most valuable means of discovering cases of renal diabetes.

11. The determination of non-protein nitrogen retention in the blood is a most important aid in estimating the operative risk in a patient and therefore is of prognostic value.

12. It is of special value in this line in genito-urinary surgery.

13. Practically all cases of gout show a uric acid retention in the blood.

14. Non-gouty arthritis cases show a non-protein nitrogen retention as well as an increase in the uric acid.

15. The value of cholesterol determination has not yet been definitely established.

16. Blood chemistry is not at present of much value in acute febrile conditions.

17. By reducing in the food of the patient the precursors of the particular substances found increased in the blood, very good results have been obtained.

18. We must always bear in mind that other factors involving metabolic function are to be considered in making deductions from blood chemical tests.

Wesley Hospital, Oklahoma City.

Parathesin Not Admitted to N. N. R. The Council on Pharmacy and Chemistry reports that the local anesthetic ethyl paramino-benzoate was first introduced as "Anesthesin" or "Anaesthesin"; that the product is not patented in the United States, and that it may be manufactured by any firm which chooses to do so. In order that a common name for the drug might be available, the Council coined the short, easily remembered and descriptive name "Benzocaine." As the term "Anesthesin" had become a common name for the drug, the Council also recognized this as a synonym for benzocaine. While the Council had previously recognized the brand of benzocaine manufactured by the H. A. Metz Laboratories, Inc., under the name "Anesthesin," this firm requested recognition of the product as "Parathesin." As the use of one substance under several names causes confusion and retards rational therapeutics, the Council's rules provide against the recognition of proprietary names for nonproprietary, established drugs. For this reason, and because the legitimate interests of the manufacturer may be safeguarded by appending his name or initials to the common name, benzocaine or anesthesin, the Council refused recognition to the designation "Parathesin" (Jour. A. M. A., Nov. 13, 1920, p. 1358).

PROCEEDINGS OF OKLAHOMA CITY CLINIC, ROUND TABLE, WESLEY HOSPITAL

March, 1921.

Dr. W. W. Rucks: *Hyperthyroidism, With Use of Goetsch Test and Glucose Tolerance Determination in Diagnosis.*

Case No. 6701. Female, age 27, housewife, seen November 1, 1920.

Complaint: Nervousness, "nervous chills," loss of weight, profuse sweating, disturbing dreams, rapid and tumultous heart action, dyspnea on exertion.

Briefed history: Healthy child, had usual diseases incident to childhood. Typhoid fever at 14. Several attacks of tonsillitis. No other sickness until married. Menstrual life began at 15 and was normal until about a year ago when flow became very profuse, but recently flow has become scanty and she goes beyond her regular time. Soon after marriage she became pregnant, and miscarried at third month. She had a second miscarriage, and then a normal labor followed by another miscarriage. For the past 18 months she has been very nervous, which continues to grow worse. She sleeps poorly, has throbbing sensation in her body. Says the rapidity and force of her heart action disturbs her, has rigors which she calls nervous chills. These she has daily, sometimes several a day. The chills are followed by profuse sweating but no fever. About a year ago she consulted a physician who gave her a prescription containing ten grains of bromides to the dose. This she has been taking since with more or less regularity and for the past three months regularly four times a day. She has had several boils on her skin and at time of examination had a rather large one on her left forearm. When she lies with her eyes closed she sees startling and fantastic things, such as automobile accidents and her child being injured, her sleep is disturbed by frightful dreams.

Physical examination: Is much under her ideal weight, is pale, skin is cold, hands wet. Head and neck negative except one devitilized tooth and tonsils which are hypertrophied and infected. Glandular system: mild degree of cervical and epitorchlia adenopathy. Thyroid visually and palpably enlarged. Chest negative except for snappy heart tones, and the heart rate is easily disturbed by exertion or excitement. Pelvic examination negative except for lacerated cervix and retro-displaced uterus. Neurological examination, pronounced tremor of extended hand. Pupils react normally. Reflexus, hyper-active; psychic disturbances and disturbing dreams.

Laboratory findings: Wassermann test negative. Red blood cells 5,150,000. White blood cells 9800. Urinalysis negative.

Course: Patient was kept in hospital for two weeks, under tonic and dietic treatment. Sodium chlorid being given as a physiological antidote for chronic bromid poisoning. On November 14, 1920, she left hospital and was advised in regard to a period of rest On February 13, 1921, she returned and while she had improved some, largely I think from discontinuing bromides, she still complained of the nervous tension, tachycardia and weakness. From the beginning the symptoms indicating hyperthyroidism were her most marked manifestations, yet it was deemed proper that she should be relieved of chronic bromid poisoning before final advice was given. On her second admission to the hospital, both the Goetsch adrenlin test and glucose tolerance test were given. The response to the adrenlin was very pronounced, and her glucose tolerance was much diminished. Within an hour after the administration by mouth of 100 grams of glucose, urinalysis showed a gross amount of sugar, and the blood sugar content was markedly raised above the pre-test findings. A control was run at the same time, receiving the same amount of glucose with no change in urine or blood sugar content. A diagnosis of hyperthyroidism was made and a subtotal resection of the gland advised.

Dr. J. C. Mraz: *A Case of Bilateral Ureteral Stone Complicated by Bilateral Pyelonephritis, Cholelithiasis and Broad Ligament Cyst.*

Case No. 6686. Patient female, age 36.

Family History: Negative.

Personal History: Two para, labors normal. Children living and well.

Present Illness: Since age of 9 patient has had at irregular intervals attacks of pain of dull aching character in first one and then the other lumbar regions. No radiation or bladder symptoms. Attacks were associated with nausea and occasionally with an irregular fever. Of late has had some pain in region of lower end of ureters on either side. There has been a gradual weight loss of about 20 pounds.

Physical Examination: Somewhat emaciated anemic looking woman. Otherwise negative, except as follows: Moderate tenderness to pressure on either side of lower abdomen in region of ureters. No sensitiveness to pressure on either kidney. Vaginal examination discloses a mass in pelvis apparently occupying normal position of uterus. Uterus in retroversion.

Cystoscopic Findings: Upon inserting cystoscope its tip is obstructed by apparently striking against some mass. Bladder capacity 300 cc. Upon inspection a bulging bladderward of the entire dome of bladder is seen. Mucosa normal. Orifices appear somewhat edematous. Ureters catheterized. Catheters pass into renal pelves.

P. S. P. Test (Intravenous): Left 3 minutes. Right 4 minutes. Left pelvis injected with 12 and right with 25 cc. of sodium bromid solution and pyelograms made.

Roentgenologist's Report: Dilatation of both pelves and ureters more marked on right side. Lying adjacent to shadow, catheters just above bladder on both sides, are seen shadows which because of their smooth oval outline and similarity in size, shape and position, are thought to be artefacts.

Laboratory Report on urines shows pus in mixed and both segregated urines. Cultures show staphylococci.

Clinical Diagnosis: 1. Bilateral pyelonephritis. 2. Fibroma uteri.

Following course decided upon: First—Removal of pelvic tumor because of the possibility of its making pressure on lower ends of ureters, thus interfering with urinary drainage. Second—Treatment of pyelonephritis.

Operative findings: 1. Pelvic tumor proved to be a left intra-ligamentous cyst. 2. Chronic catarrhal appendix. 3. Cholelithiasis (gall bladder packed full of stones). 4. Procidentia uteri.

Operation: 1. Removal of pelvic tumor. 2. Fascial fixation of uterus. 3. Appendectomy. 4. Cholecystectomy.

Convalescence: Uneventful.

Two months after operation patient was cystoscoped, using Kelly cystoscope No. 9, carrying a small wax bulb passed into left ureter for dilatation of stricture if present and for detection of ureteral stone. Renal pelvic lavage with 1-1000 silver nitrate. Upon withdrawal of catheter a deep scratch was found running entire length of wax bulb.

Another x-ray picture was made and the same shadows were found as in the first examination, except that the left one had moved about an inch lower. Bilateral ureteral stone was now definitely diagnosed and the patient was advised to have them removed.

This was done, the left one being removed first because the left kidney was shown to be in comparatively good condition. The right one was removed two and a half months later, after several unsuccessful attempts were made to induce it to pass by dilatation of ureter and injection of olive oil. The reason for its failure to pass was seen at operation as it was found surrounded by dense fibrous tissue so that it could not be moved either up or down. The stones were rough and the size of large olive seeds.

The patient made a smooth operative recovery each time and is still being treated by passage of wax bulbs to dilate the dense fibrous strictures in which the stones were found imbedded and for purpose of renal lavage. The patient is gaining rapidly and steadily and the amount of pus in the urine is steadily decreasing.

This case presents several points of interest: First: In spite of the long duration of the infection, 27 years, and with considerable dilatation of ureters and pelves, the functional activity of the kidneys is still fairly good as shown by the phenolsulphonephthalein test, and blood chemistry.

Second: The association of ureteral stone and gall stones, both probably secondary to the same infective agent.

Third: Bilateral ureteral stone is a rare condition. The Mayo Clinic reports four cases of bilateral stone in a series of 500 cases of ureteral stones.

Fourth: The case demonstrates the value of the waxed ureteral catheter in diagnosing some obscure cases of ureteral stone.

Dr. J. C. Macdonald: *Posterior Orbital Hemorrhage.*

Baby, eight days old, brought in because of exophthalmos of left eye and hematoma over left temporal region.

On day following birth the left eye began to bulge and a small tumor appeared over left temporal region. This condition has gradually become worse. The baby has rested well and apparently had no fever.

Examination shows marked exophthalmos of left eye with slight haziness of cornea. There is a tumor over left temporal region which fluctuates on touch. Temperature is normal.

Operation: An incision was made over hematoma and slight amount of blood evacuated. On passing a probe down through frontal sphenoidal suture back of the orbit, a considerable quantity of dark red blood was evacuated.

The following day the exophthalmos was slightly less and it was hoped the eye could be saved. Two days later, however, a panophthalmitis and hypopyon were present and an enucleation was done.

Convalescence was uneventful.

While the etiology of this condition is not clear, it was evidently due to injury at delivery. The enucleation was done when it was apparent that the eye could not be saved, also to prevent symphathetic ophthalmitis of other eye.

Dr. A. L. Blesh: *Cholecystitis, Acute Suppurative.*

During the last two years we have had almost 100 cases of acute suppurative cholecystitis in the surgical service at Wesley Hospital. At the present time there are two cases convalescing, the one operated by Dr. Stout, the other by me. These cases are of great interest to me, for the reason that since 1919 we have treated them radically different.

Prior to 1919 we treated them by drainage as advised in most of the large clinics, and in all of the standard text books. Our mortality under this treatment was twice what it now is, convalesence was much more tedious, morbidity was greater, and very often the necessity for a secondary operation was imperative.

In the last series of 100 cases of acute suppurative cholecystitis (phlegmon, gangrene, etc.,) we have unhestitatingly done an extirpation of the gall bladder. The records show a mortality of one per cent, or if perforation of the gall bladder with ensuing peritonitis is included, two per cent, one of each class having died. Of course the perforating cases with peritonitis are much fewer in number and I do not wish to be understood as meaning the mortality figure of two per cent to stand for perforating cholecystitis with peritonitis. The smoothness of convalesence as compared to the former series in which cholecystotomy was done has been the striking feature in the cases. Also the freedom from post-operative morbidity has been most marked and the patient has not carried with him the dread of another operation.

The operation itself is not especially difficult, but it should be borne in mind that the technique best adapted to the removal of a thick swollen friable gall bladder is to work from the fundus toward the cervix and not from the cervix toward the fundus. The latter is the ideal way to do a cholecystectomy in an elastic gall bladder.

The patients have been among the most grateful that we have had, and it has been no uncommon thing for them to give expression to their relief when they awaken from the gas, while yet in the operating room.

Dr. D. D. Paulus: *Angina Pectoris.*

Patient, male, age 37, occupation shoe salesman. Family history not obtained. Has had no sickness since childhood.

Present complaint: 2 hours ago had sudden severe pain over chest, cardiac region. Pain radiated to neck. Pain was severe enough to cause patient to cease all movement or muscular effort. This pain continued and patient was sent to hospital. No constricting sensation of chest or heart.

Examination: Shows well developed, well nourished middle age man apparently in considerable distress. No cyanosis. Pupils equal and react promptly to light and accommodation. Throat negative. Glandular system negative. Chest negative. Heart, left border

three-fourths inch beyond nipple line. Heart sounds normal. Slight hyper-aglesia of cardiac region. Blood pressure 140-70, pulse 72. Abdomen and extremities negative. Reflexus O. K. Urine analysis: Specific gravity 1030, alkaline reaction. Albumen, faint trace. Microscopical, a few hyaline casts. Wassermann negative.

The next day patient still had some pain over cardiac area, but not very severe. Auscultation showed a distinct diastolic murmur over base, with a slight systolic murmur heard over aortic area. A fluoroscopic examination at this time showed a left side preponderance with moderately dilated aorta. On the third day patient stated that pain was practically gone, although he felt quite weak and tired. From that time patient improved rapidly until he left the hospital.

The ultimate prognosis in this case is grave as we have an aortic lesion with a rather typical attack of angina pectoris. No doubt the lesion in the aorta is of the progressive type and his angina attacks will increase in frequency as time goes on. This patient probably has sclerotic patches both in his coronary arteries and his aorta, even though his blood pressure is not particularly high. The question of syphilis in a case of this kind has to be considered because syphilitic aortitis is a common lesion of the aorta. His negative history to venereal infection, the negative finding of his glandular system with negative Wassermann, seem to disprove this. We should always remember though that syphilitic aortitis may occur even in young men and is usually a grave symptom, because of its progressive character.

Recently we have had a number of marked angina pectoris cases without visible myocardial inefficiency, and a normal or even low blood pressure. This, however, does not disprove a localized sclerosis of coronary vessels, which is a rather common finding in angina pectoris, although not always present.

TUMORS OF THE BREASTS DISAPPEARING UNDER X-RAY EXPOSURE.*

A. Ray Wiley, M. D.
TULSA, OKLAHOMA

Case History: Mrs. R. E. S. came to my office March 9, 1921. Her chief complaint was tumors of both breasts. She gave the following history; both parents living and in good health. Has no brothers nor sisters. There is no family history of malignancy.

Personal history: No illness in her life until she had influenza in 1918. Menstruated at 13 years of age, regular, but had dysmenorrhea from 13 to 17 years of age. Married at 20, and is now 28 years old. She has never been pregnant.

First noticed a "lump" or tumor in left breast 4 years ago. Later, noticed other tumors in the same and also in the other breast. From time to time she has noticed that there has been a slight change in the size of the tumors, both of increase and of decrease, but they have always been present since first noticed. Breasts are tender at menstruation time, but no more so than before she noticed the tumors, and the tenderness is not in the tumors. There never has been any discharge from either nipple, of any character. The breasts are of normal size, and of flaccid type. There are four distinct tumors in the left breast, and three in the right. The largest is the size of a pecan or small walnut and is located 1 1-2 inches to right of left nipple. The tumors are freely movable, firm to the touch, and not tender.

Examination of the rest of the body shows: head normal except hypertrophied tonsils and a slight enlargement of the isthmus of the thyroid. The lungs and heart are normal; abdomen normal. The reproductive organs are normal except slight endocervicitis. A blood Wassermann was taken which was reported negative throughout. A urine analysis, by the same laboratory, was reported to be normal.

A presumptive diagnosis of benign multiple fibroids was made. She was ordered to the hospital the next day for x-ray. She was fluoroscoped for any lesion of the chest. There was none found. She was then given x-ray exposures over the breasts in four different areas, using 8 in. spark gap, 4 millimeters, filtered through 4 millimeters of aluminum and one millimeter of sole leather, with three minutes to each exposure.

She was then ordered to report in ten days for operation for the removal of one of the tumors under local anesthetic for a complete diagnosis as to the pathology of the tumors. The idea of giving a preoperative x-ray was to lessen the danger of producing an early metastasis in event the tumor removed for section should be cancerous. This is a precaution that should be taken where one has access to the x-ray but not to the frozen section facilities.

She reported on time and was taken to the operating room. Then, to my amazement, no tumors could be found. Fortunately this was discovered before any anesthesia or operative work was started. I called in Dr. Lhevine, as he had examined her at the time of the x-ray and had given her the x-ray exposures. Neither could he, now, find any tumors. I examined her four days later with same results.

She was given K. I. ten minums T. I. D. and ordered to report in one month.

*Read before the Tulsa County Medical Society, March 28, 1921.

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Local news of possible interest to the medical profession, notes on removals, changes in address, deaths and weddings will be gratefully received.

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EDITORIAL

WHY MORE "PREVENTIVE" CAMPAIGNS?

"Anti-Fly Campaign of 1921" and "Bathtubs and Progress" have recently reached our office; the former a free circulating, altruistic sheet, with apparently none but the purest motives born of the desire to aid the unthinking, unwary citizen of possible danger and destruction from a lightly regarded source; the latter a concise resume of the evolution of the bath, noting former criticism of such "foolish" innovations, its slow progress in the face of ignorance and opposition from those, who like the obstructionist of today, either knew nothing of the matter or twisted their supposed "constitutional or religious bigotry" into remarkable protest.

Such propaganda is very familiar to all physicians, his profession, the originator, active and unpaid disseminator of that and every other measure of prevention and control, as far as is known, of preventable disease. However, there is a remarkable, unwarranted and highly irritating side to all such activity—and that is the invariable charge of self interest, selfish motive and some mysterious end, the method never explained by the critic—by which our interest is given the lowest possible interpretation. Whether in Oklahoma any other state or at Washington, with little change as the years go on, is to be found in unreasonable, fanatical opposition, the Christian Scientist, every "off-color" school of medicine, and, incongruous as it may seem, immense National patent medicine interests before legislative committee hearings everywhere, charging that the medical profession, by some hook or crook seeks, regardless of the measure being considered, to imperil the rights, lives, happiness and comfort of the people. Recently the bill providing for instillation of silver nitrate in the eyes of the newborn babes, fell a victim to this foolishness, the gentleman from Muskogee County insisting that the law except those having "religious" scruples against harmless application of a simple drug, but one powerfully potent as almost certainly preventive of blindness due to gonorrhoeal infection. Incidentally it is not out of place here to note the reason given by an editorial writer in the *Tulsa World*, for caustic opposition to the measure being enacted in any form. He states his case briefly, but effectively: "I employ the best physician I can get to look after my family, I expect him to do the best under all circumstances. Why should I have to "legislate" into him a step well known to the scientific world as the thing to do?" Certainly there is logic in that position. Certainly any physician neglecting that procedure at birth of any child, rightly faces just charge of inexcusable malpractice. Yet with this fact well known, we find our time-wasting, so-called representatives, haggling over legally written exceptions, sanctioning the most dangerous neglect to the most helpless of humanity. This same "conscientious objector" is the same found objecting to compulsory baths in schools of more than two hundred pupils. The doctor, of course, as do all decent people, recognizes the good sense, as well as the apparent need for such, for he knows that not all parents are punctilious over such attentions to their children, that dirty children are dangerous to all other children, that a bath could do them no possible harm and that the habit of cleanliness inculcated at the ages of school life would be of vast benefit eventually in lessening disease. Regardless of all these generally accepted facts the human intelligence is humiliated by having to enact a half-effective piece of legislation simply because a small, fanatical minority of our people twist the unreason into alleged belief that their rights are endangered. Certainly the world has never witnessed so much

foolishness in a day when we are supposed to be modern and mindful of the lessons of past experience and knowledge.

Our concern lies in the continued questioning of the motives of an honorable profession. If there were anywhere, in the past activities or policies of our profession, an instance of the doctor en masse suggesting any procedure to the people by which it could be shown remotely possible results brought personal gain, no man would object to the closest investigation. On the other hand every worthy move of the past tending to and actually lessening morbidity has sprung from the researches of the doctor. This stands unchallenged since time made record of performances of man. Many diseases, formerly death's great aid, are now under control wherever the intelligence of people permits them to accept free advice from the doctor. Volumes may be written recording past great achievements and sure evolution of the hopeless into hope; the world's pest holes have been eradicated and made safe; by whom? The Christian Scientist's fanatical appeal? His obstruction of everything? If his path only brought injury to himself, we would have little to say, but we have too much of the untreated, preventable death among him. If his willingness to accept dangerous infection could be hedged so the innocent were not called to account for his foolishness, we would have nothing to say, but his destruction cannot be calculated. The entire performance is becoming so monotonously tiresome, that there is some justification in the growing tendency among individuals to alter our policies, to attend to our own business and let the dear people have the result, whatever it may be. This sounds inhuman, but if the medical profession could suddenly be brought to that united plan of action by which he kept his counsel, his knowledge of the ease of prevention, instead of being widely heralded, without the slightest return compensation, not even gratitude, entirely within his selfish self, then, indeed, we would observe in a few short weeks a different attitude. No doubt we would have repeated in a few days, the same frantic appeal, not yet forgotten, when the country found itself at war. The age limit would not be mentioned, the doctor's family would again be called to share his sacrifices, and, like the kind asses we are, the call would be answered. We predict that on the day of arrival of typhus in Oklahoma the bath will suddenly become a popular institution. On that day our ever-present obstructionist, the Christian Scientist, will have his inning, but it will be at the bath tub, under supervision of a "Healer?"—no, a "Regular" doctor will be master of the bath.

AGAIN THE TAILENDER.

We have him with us always, always the same fellow. Our records show that for years the same laggard doctor is found in that small file of "left-overs," his membership lapsed, his name a liabilbity instead of an asset, s mply because he lacks that small bit of cooperation to make his membership worth while instead of a costly piece of worry. He should appreciate that he does not pay the cost either, except he suddenly looks up and sees the deputy sheriff handing him a scrap of paper, technically called a "summons," which means he will now ornament the hot griddle of a legal hovel for days more or less. Then, and then only, he sees the point, manages to become indignant, even enlisting his friends in criticism of the "neglect" he has received. We recall one who seduced his county secretary into writing "He is all right, always been a member, it seems he ought to have defense." He did not get it.

The McAlester meeting should certainly write into our regulations a small clause demanding a penalty of no small proportions, as a necessity for renewal of membership, after it is allowed to lapse in the face of repeated notice. As the matter stands, the most troublesome, difficult work, requiring painstaking checking of records and transfer, is the task handed our office by this minority. Inasmuch as it is always the same fellow, he should be a good sport and not dance without paying the fiddler.

ETHICS.

As old as medicine, the first thought of Hippocrates, drilled into every medical student, st ll we are constantly transcending its bounds of decency. The thing we do not like about it is being called to "interpret" the law. Annually, at least a bushel of papers sift into the Secretary's office, some signed, some anonymous, but all having for object direct invitation for the Secretarys' office to regulate the offender. Now be it understood, the Secretary is not a Czar, has no power of injunction, and finds by sad experience that the position of referee is hard and thankless, even advice—we do not undertake to say it is very good—solicited, surely has its reward in enmity as often as otherwise.

Ethics means nothing more or less than the Golden Rule. No Oklahoma physician needs to be told that his actions are improper, not in keeping with the rule of customary, accepted behaviour. Every one open to criticism knows very well that he is doing wrong. Shifty excuses in attempts at explanation and avoidance of clear responsibility are unworthy and

fool no one, neither do they excuse or undo the wrong. No honest man can look his fellow doctor in the face if he is committing wrong in ethical matters.

The kernel of the matter might be arrived at by the House of Delegates at McAlester by a brief declaration of principles once more for the benefit of those who pretend they are at a loss as to the proper course. We suggest that the matters listed below might be given clarity, eventually called to the attention of all of us.

Dr. ..... has been quite busy this week. In one day he met the stork at Bill Jones, then rapidly "flivvered" over to Tom Brown's, barely defeating the stork in that race, and hardly had his boots struck the floor until he had to lift his tired overworked frame into the "flivver" again and deliver little Sue Ann Smitty, 12 pounds, into the hands of the proud father.—(*Any Old Weekly*).

"Well' I'll tell you, a fellow just has to do it. That fellow (Dr.....), up at....., gives them 50% for surgical cases; it's funny too, he used to just give 25%, but Dr..... over at..... got to giving them 50% and was taking all his 'business,' so he just naturally raised the ante. Another thing about it too, Dr..... is a member of the American College and they say they do not take 'that kind of members.' Now when a member of the American College does those things what else can we do?" Answer: Go out and steal a horse or automobile; it is being done quite regularly. (We have wondered what effect would result from adoption of a standard receipt to be given by every operator to his patient, reading "Received of.....$150.00 in full for operation and care of wife, $75.00 of the above amount, it is mutually understood, is to be paid Dr....., family physician of....., referring the case.")

Consultation with "so and so," osteopaths, etc. What shall we do about it? Some localities are not quite certain. Incidentally advices have been received that some of our "Regulars" are not averse at all to colleaguing with the Chiro. Where do we go from here, boys?

"This suit was 'ribbed' up by men right in my own town," Dr..... advised the plaintiff and his lawyer, even went into court and "swore so and so." (This is identical with pouring oil on one side of the house and water on the other, for fire control. Every doctor is assailed, if he only had sense enough to see it, in practically every suit. We should either stop that foolishness or abandon defense.)

Chiropractic leaders announced immediately after passage of their separate board law that administration of drugs by any Chiropractic would call for immediate prosecution of the offender and revocation of his license. It should be noted as significant that the other system of "Drugless Healers," the Osteopaths, are clamoring with all their might for legal permission to administer drugs, etc. The remarkable thing about the whole matter is the inconsistency of the 8th Legislature in legalizing one set of "Manipulators," and in the same breath legalizing the hybrid creation, now existing, half osteopath, the other half poorly trained, inadequately instructed drug administers, or at least those claiming such opposing abilities.

We cannot say "Selah" here.

THE EIGHTH LEGISLATURE AND MEDICAL LEGISLATION

The session of the 8th legislature goes into the discard as having enacted more legislation affecting the science of medicine, healing and the public health than any predecessor in our history. Briefly this body, in its wisdom, saw fit to do the following:

Create a separate board for the Chiropractics.

Create a separate board for the Osteopaths.

Enact requirement that newborn children should receive immediate instillation of 1% silver solution in the eyes, excepting those objecting by reason of religious scruples.

Refused to pass law for examination of cooks, waiters and food handlers to determine freedom from venereal infection. Likewise rejecting provision for establishment of baths in schools with more than two hundred pupils. This latter, also killed by Christian Scientist objections.

Cut every appropriation proposing maintenance of public health agencies to the limit of the ridiculous.

Booted every soldier relief proposition over the field, in the end doing nothing, aside from purchasing makeshifts as a salve to the ill and wounded soldier.

Without question the session will go into just oblivion as having no idea of its duties and obligations to the people of Oklahoma insofar as the above matters are concerned.

A STATEMENT TO OUR MEMBERSHIP.

As a matter of personal privilege the Secretary-Treasurer-Editor takes this occasion to briefly state certain facts surrounding legislative and other activities, which, in some sections of the State seem to be either wholly misunderstood, inexcusably misinterpreted, possibly, given such interpretation without any information upon the matter or refusal to recall very distinct attitudes of their membership from time to time as the urgency of the matter has been called to their attention.

Inspection of past issues of the JOURNAL, with circular and personal letters will disclose that the continuous warning from this office at every opportunity, was that Senate Bill 111 was the best obtainable from the standpoint of proper regulation of scientific medicine, while its composite membership character was open to grave questioning, the concensus of opinion, *not of Oklahoma*, but overwhelmingly of other states having the problem, was that that course was the best compromise. The advices constantly warned that every *member, county organization and state*, must not accept the matter lightly, that the doctor only could direct sensible opinion, that he must individually do that.

Lack of cooperation was evident at all times,

but it was especially so in those centers piling up the huge majorities against the Law. Vivid memory justifies, as now unwarranted criticism of the handling of the matter comes from that county, the reminder that long ago, when the matter was presented to the society in question, the effort for unity was met, as reported, "With the 'Horse Laugh'." In that county the officers not only neglected to report a legislative committee, but one had finally to be arbritarily named and solicited personally to act, appreciation of the matter was voiced, in the now well remembered reply of the "drafted" chairman, "I take no interest in politics." Here it must be suggested that doctors do take an interest in "politics," which is only the science of government, certainly a function of all intelligent citizens, if the best government is to prevail.

This county, overwhelmingly Republican, now criticizes the efforts of Representative Sharp, Republican, Logan County, impossibly attempting to associate his actions with the writer. They are to be assured that I did not send Dr. Sharp to the Legislature, nor did I suggest to him his suggestion to the House, that boric acid be substituted for Silver Nitrate in treating newborn's eyes. They are to further definitely understand that this office took no step without first consulting every one thought to have ideas of merit and assistance, and that often no aid came from those sources, not even replies. In the end they must understand, however, that theirs stands at the head of obstructionists and non-cooperators. This fact is painfully evident from the preserved files of the years of wasted work expended futilely.

Criticism is the very finest stimulant known to produce the best efforts of men, but when made in bad faith, when made in attempt to shirk responsibilities, when it attempts to explain humiliating results over which the criticized had no possible control, then it becomes mere dishonesty. It is also significant that none of such criticism comes from the few counties defeating the Referendum, but the most comes from the county piling up the largest Chiropractic majority; it lessens in exact ratio with the falling pro-Chiro. vote.

Later, when your secretary suggested to a boyhood senator friend that he consult the good physicians of his counties before finally deciding his position upon such a technical matter; he did that very thing, wrote all of them, *For reply he received not one letter*; this too, after the writer had personally called that county and asked that they immediately co-operate in the matter, Multiplication of these facts are too humiliating and exasperating for further waste of time. Oklahoma acted throughout exactly contrary to the action of other states.

The reader of this is to emphatically understand once and for all that personally the writer is only seeking to follow the best course, that whatever a sensible majority directs as the best action will be followed. He is to understand, too, that nothing is more destructive to the personal interests of the writer than these labors calling for total abandonment of his own affairs.

Absracts, Observations from Current Medical Literature

CONDUCTED BY

RADIOLOGY AND DERMATOLOGY—Dr. Chas. H. Ball, Daniels Bldg., Tulsa.
GENERAL SURGERY—Dr. M. E. Stout, Patterson Bldg., Oklahoma City.
ORTHOPAEDICS—Dr. Earl D. McBride, 208 Colcord Bldg., Oklahoma City.
EYE, EAR, NOSE AND THROAT—Dr. L. C. Kuyrkendall, McAlester.
GENERAL—INDUSTRIAL MEDICINE—PUBLIC HEALTH—Dr. L. A. Mitchell, Frederick; Dr. J. L. Austin, Durant.

EYE, EAR, NOSE AND THROAT

L. C. Kuyrkendall, M. D., McAlester

ETIOLOGY OF DEVIATIONS OF THE NASAL SEPTUM: ANATOMIC THEORY

William Spielberg, M. D., New York, *Journal A. M. A.*, December 11, 1920, Vol. 75, No. 24.

The writer names the different theories advanced up to the present time and those usually accepted, viz.: The Talbot, stigma of degeneracy, the Trendelenburg and Freeman of persistent high arch of the palate crowding the vomer, and the Bosworth, that of traumatism, then gives his theory which is as follows:

"The Nasal Septum divides the bony structure into two compartments. It is surrounded by hard, unyeilding, bony tissue which begin to ossify from the first to eighth week of gestation. The septum composed of the vomer, perpindicular plate of the ethmoid and triangular cartilage, ossifies so far as the bony portion is concerned, from the second year to puberty. Of course the cartilage remains soft throughout life.

"It is easily conceived, therefore, that the surrounding bony structures, ossifying at a much earlier period than the bony septum, will cause the septal constituents to deflect or deviate in order to permit it to occupy its proper place. It is as if one should attempt to insert a paper perpendicularly into a box of smaller dimensions. The paper would, of course, assume the form of an S or bend out with concavo-convex configuration."

A RAPID CULTURAL METHOD OF DIAGNOSING DIPHTHERIA

W. D. Frost, Ph. D., Alice M. Charlton, M. S., Madison, Wis., and Mary F. Little, *Journal A. M. A.*

In this article the authors give you a beautiful and lurid description of their rapid Cultural Method of diagnosing diphtheria, but to the average eye, ear, nose and throat man as well as the general practictioner, it is of no benefit in that it would involve the equipping and maintaining of a laboratory or else the sending away to the city of the specimen, and the time element would not be re-

duced thereby. Their technique is beautifully written but not applicable, practicable or even possible of adoption by the profession at large.

Editorial Notes—Personal and General

DOCTOR JAMES PORTER McRAE

Dr. James P. McRae, Coalgate, died March 8th at that place after a brief illness following operation for peritonitis incident to appendicitis. Dr. McRae was born in Knox County, Mo., October 19, 1870, receiving his medical education at Keokuk Medical College. He is survived by a wife and several brothers and sisters. Interment was made at Coalgate.

In Memory of Dr. J. P. McRae

Coalgate, Okla., March 16, 1921.

Whereas, it has been the will of the Great Spirit to remove from our midst, one of our porfessional and one of our best citizens, be it resolved, we mourn his early demise and extend our heartfelt sympathy to his family and relatives, and yet we humbly bow to the will of our God, the author and finisher of our faith.

When the dearest friend has departed
We would speak kind words to the broken hearted,
We know that as we travel the road that he has trod
We too 'ere long will be called home to our God.
Dear friend, as we stand and look on your lifeless form
We realize that you have passed through life's great storm,
You have fought the good fight, you have won
And now we know your cares and toils are done.
The Death Angel has brought us sorrow and pain
Yet we know, dear friend, our loss is your gain.
Oh God, precious Savior divine
Help us to give him up, he is Thine.
It is not all of life to live, or all of death to die
There is a mansion prepared for us beyond the skies.
Let us take courage, live in devotion and prayer
And meet this dear friend over there.—F. B.

By Coal County Medical Society.

Dr. I. B. Oldham, Muskogee, visited Alabama in March.

The Oklahoma Methodist Hospital, Guthrie, proposes erection of a training school building for nurses with capacity of from 20 to 50 beds.

Dr. T. J. Gipson, Lawton, is acting the part of the "worm" which turns. A few hours after a reckless driver wrecked his car Dr. Gipson filed suit for $1,200 damages.

Waukegan's (Ill.) **"Chattering Child,"** eight-year old Miriam Rubin, whose phenomenal cure of her attack of "Talking sickness" by Chiropractic adjustments, which was widely heralded by news dispatches, it seems is not quite "cured" yet, though the "Chiro" faithfully adjusted her little spinal column from February 12 to February 23, at which time he was dismissed by the parents, who stated no material improvement had resulted, also illuminating the situation by explaining that they had received letters from various sources, finally a telegram suggesting Chiropractic treatments, which were tried. Also stating that the "Chiro," after seeing the child, said: "I know what is the matter with your child, I can cure her." No less authorities than Drs. Isaac A. Abt and Robert Preble, Chicago, saw the case in consultations, all agreeing that it was a case of encephalitis with unusual symptoms of excitation. The child did not talk incessantly, but intermittently. Complete results of an investigation conducted by the American Medical Association may be noted in March 5th issue. Unfounded claims of "cure" by the Chiropractic is not unfamiliar to the busy physician; their claims rank almost with those of the Scientist in their improbability, when the rules of scientific knowledge are applied and usually investigation discloses just such *faux pas* as in this case. The significant thing, however, over which one may ponder, is the total inability of the sensational press to undo the damage they have done, even if they had inclination. The truism, "Fools rush in where angels fear to tread," is again exemplified.

MISCELLANEOUS

WISCONSIN HOME-COMING

The State Medical Society of Wisconsin will celebrate its seventy-fifth birthday by holding a "Home-Coming" meeting in Milwaukee, September 7, 8 and 9, 1921. All former Wisconsin men, whether they have practiced there or left Wisconsin to study medicine, practicing elsewhere after graduating, are invited to this home-coming.

The officers of the society are anxious to secure at this time for mailing purposes the names of all former Wisconsin men. They will confer a favor by sending their names and addresses to Dr. Rock Sleyster, Secretary, Wauwatosa, Wisconsin.

THE ROMANCE OF ADRENALIN

An old adage says that "Truth is stranger than fiction." Has the reader ever stood near one of our great railway arteries watching the passage of a heavily laden cattle train? Has he observed how closely the animals, about twenty in all, are packed into each car? A train-load of sixty cars, 2400 feet long, carries 1200 cattle; and nine such trains, about four miles long, are required to transport 10,800 animals.

But what has this to do with Adrenalin? Simply this: to obtain one pound of this remarkable substance in crystalline form the suprarenal glands of six train-loads of beef cattle must be collected and treated. Think what that means. It almost savors of the romantic.

The preparation of Adrenalin is not done by tyros. In the laboratories of Parke, Davis & Co., who gave Adrenalin to medicine, costly and elaborate apparatus has been devised and is presided over by highly skilled technicians in chemistry. Under their dextrous manipulation the delicate principle is extracted from the medullary portion of the gland and purified for subsequent use in preparing the various solutions. Adrenalin is readily affected by oxygen, and for that reason all through the process especial care is taken to protect it from oxidation, with such notable success that the solutions reach the physician absolutely unimpaired and of full strength.

In some respects Adrenalin is the most wonderful and interesting endocrine product now known. Its action is virtually instantaneous and dramatic. It blanches tissue as no other substance does. It controls capillary bleeding, cuts short the paroxysm of asthma, supports the heart and circulation when depressed, reinforces the action of local anesthetics and makes it possible to do with less of them. It is a valuable test for certain obscure pathologic conditions, as latent hyperthyroidism.

Parke, Davis & Co. publish attractive literature on Adrenalin for gratuitous distribution to physicians. Write to them for a supply, and after reading it file it for future reference.

OFFICERS COUNTY SOCIETIES, 1921*

County	President	Secretary
Adair	J. W. Rogers, Watts	J. A. Patton, Stilwell
Alfalfa	J. Medaris, Helena	H. E. Huston, Cherokee
Atoka	T. H. Briggs, Atoka	M. Pinson, Atoka
Beaver		
Beckham	J. E. Standifer, Elk City	J. E. Yarbrough, Erick
Blaine	F. R. Buchanan, Canton	J. A. Norris, Okeene
Bryan		J. L. Austin, Durant, Okla.
Caddo	J. W. Padberg, Carnegie	Chas. R. Hume, Anadarko
Canadian	P. F. Herod, El Reno	J. T. Phelps, El Reno
Carter	S. W. Wilson, Ardmore	A. De Porte, Ardmore
Choctaw	V. L. McPherson, Boswell	Reed Wolfe, Hugo
Cleveland	J. R. McLaughtin, Norman	Gayfree Ellison, Norman
Cherokee	W. G. Blake, Tahlequah	P. H. Medearis, Tahlequah
Comanche	L. T. Gooch, Lawton	W. J. Mason, Lawton
Coal	W. T. Blount, Tupelo	J. J. Hipes, Coalgate
Cotton	C. W. Alexander, Temple, Okla.	A. R. Hancock, Walters, Okla.
Craig	W. R. Marks, Vinita	R. L. Mitchell, Vinita
Creek	C. E. Kahle, Drumright	J. C. Stevens, Drumright
Custer	McLain Rogers, Clinton	M. C. Comer, Clinton
Dewey		W. E. Seba, Leedy, Okla.
Ellis		O. C. Newman, Shattuck
Garfield	J. H. Hayes, Enid	Glenn Francisco, Enid
Garvin	E. E. Norvell, Wynnewood	W. P. Greening, Pauls Valley
Grady		U. C. Boon, Chickasha, Okla.
Grant		Chas. A. Brake, Medford, Okla.
Greer	T. J. Nunnery, Granite	J. B. Hollis, Mangum
Harmon	S. W. Hopkins, Hollis	J. W. Scarbrough, Gould
Haskell	J. C. Rumley, Tamiha	T. B. Turner, Stigler
Hughes	J. W. Lowe, Holdenville, Okla.	
Jackson	R. H. Fox, Altus	J. B. Hix, Altus
Jefferson	A. G. Cranfill, Grady	J. I. Derr, Waurika
Johnston		J. T. Looney, Tishomingo, Okla.
Kay	C. W. Arrendell, Ponca City	H. S. Browne, Ponca City
Kingfisher	I. H. Vincent, Dover, Okla.	A. O. Meredith, Kingfisher, Okal.
Kiowa	J. A. Land, Lone Wolf	J. M. Bonham, Hobart
Latimer	G. A. Kilpatrick, Wilburton	J. F. McArthur, Wilburton
Le Flore	Joseph J. Hardy, Poteau	Harrell Hardy, Poteau
Lincoln		C. M. Morgan, Chandler, Okla.
Logan	C. B. Hi l, Guthrie	J. E. Souter, Guthrie
Love		A. E. Martin, Marietta, Okla.
Major		
Marshall	H. E. Rappolee, Madill	W. D. Haynie, Kingston
Mayes	G. W. Tilly, Pryor	Ivadell Rogers, Pryor
McClain	J. N. West, Purcell	O. O. Dawson, Wayne
McCurtain	A. Graydon, Idabel	R. H. Sherill, Broken Bow
McIntosh	Dyton Bennett, Texanna	W. A. Tolleson, Eufaula
Murray	G. W. Slover, Sulphur	W. H. Powell, Sulphur
Muskogee	F. W. Ewing, Muskogee	A. L. Stocks, Muskogee
Noble	D. F. Coldiron, Perry, Okla.	J. L. Dorough, Perry, Okla.
Nowata	Robert Allen, Nowata	H. J. Bagley, Nowata
Okfuskee	J. A. Kenedy, Okemah	H. A. May, Okemah
Oklahoma	Horace Reed, Oklahoma City	Tom Lowry, Oklahoma City
Okmulgee	W. B. Pigg, Okmulgee	Harry E. Breese, Henryetta
Ottawa	M. M. DeArman, Miami	General Pinnell, Miami
Osage	Roscoe Walker, Pawhuska	G. E. Stanbro, Pawhuska
Pawnee		E. F. Robinson, Cleveland, Okla.
Payne	Benj. Davis, Cushing	J. B. Murphy, Stillwater
Pittsburg	J. W. Echols, McAlester	F. L. Watson, McAlester
Pottawatomie	J. A. Walker, Shawnee	T. C. Sanders, Shawnee
Pontotoc	W. D. Faust, Ada	W. E. Boyce, Ada
Pushmataha	George Robinett, Allison	J. A. Bu1nett, Crum Creek
Rogers	J. F. Means, Claremore	W. P. Mills, Claremore
Roger Mills		
Seminole		W. L. Knight, Wewoka, Okla.
Sequoyah		E. P. Greene, Sallisaw, Okla.
Stephens	J. P. Bartley, Duncan	E. B. Thomasson, Duncan
Texas	W. H. Langston, Guymon	R. B. Hayes, Guymon
Tulsa	A. W. Pigford, Tulsa	Roy W. Dunlap, Tulsa
Tillman	O. G. Bacon, Frederick	L. A. Mitchell, Frederick
Wagoner		C. E. Martin, Wagoner, Okla.
Washita		J. W. Kerby, Cordell, Okla.
Washington	Elizabeth Chamberlain, Bartlesville	W. H. Kingman, Bartlesville
Woods	E. P. Clapper, Waynoka	O. E. Templin, Alva
Woodward	J. M. Workman, Woodward	C. W. Tedrowe, Woodward

*Names of officers for 1921 will be added to above as they are reported for the year.
Blanks indicate no report received in time for addition.